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The OIL WEEKLY and The COMPOSITE CATALOG for the drilling-producing-pipeline industry

PETROLEUM REFINER and The REFINERY CATALOG for the refining-natural gasoline industry

LOOKING AHEAD
. . . with the Editor

FUTURE geophysical progress may not lie in an over-emphasis upon one specific method but rather in a coordination and correlation of the results obtained by various methods.

Instrumental and personal elements, different accessibility in summer or winter, greater experience and other circumstances will often influence the results obtained by a geophysical method so that it is frequently advisable to re-survey the same area by the same method.

There is, however, no doubt that the physical characteristics of certain regions or problems are better suited for one method than for another. Better results could thus be obtained by using a second method or by combining the surveys of a first and a second method.

Obviously, a proper coordination of results can only be achieved, if the strength as well as the weakness of each method is sufficiently understood and taken into due consideration.

Some interpretational problems encountered in micro-magnetic surveys under various geological conditions is the subject of a paper by Dr. W. P. Jenny, which will be published in an early issue. The data presented cover a wide range of oil fields. The author expresses the hope that the detailed structural resolving power of the micro-magnetic method under various geological conditions is sufficiently demonstrated by the examples discussed.

The OIL WEEKLY

ENGINEERING • NEWS • STATISTICS

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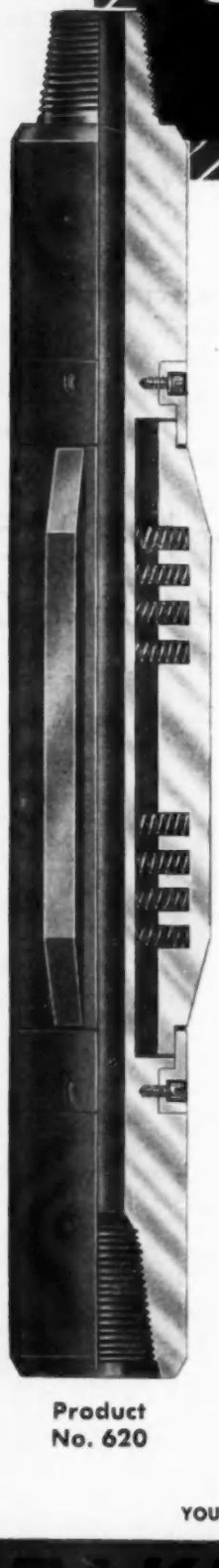

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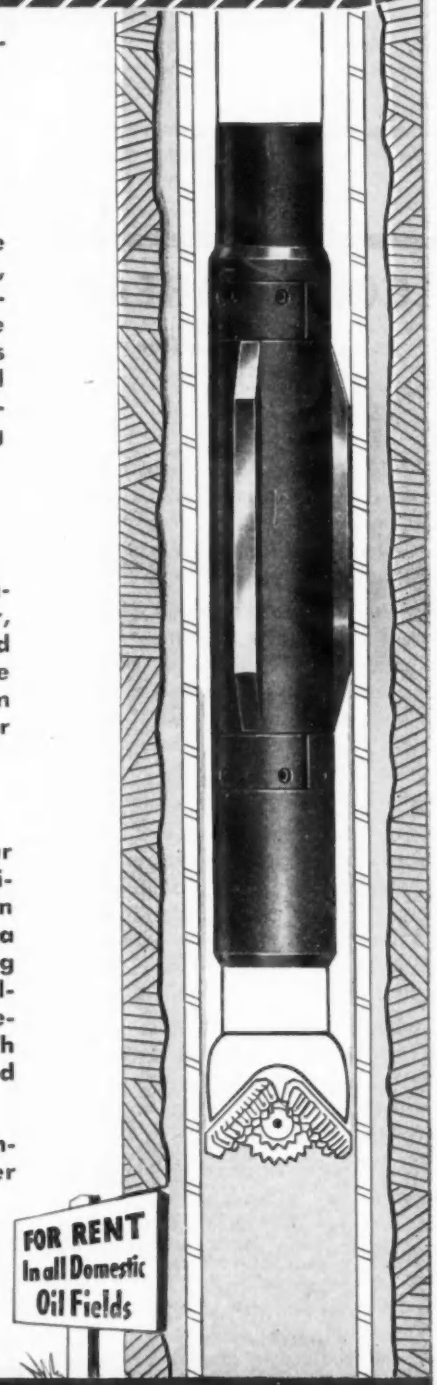

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The Changing Panorama

Peacetime Problems Need Wartime Study

THAT the present cut-backs being made in crude output in the United States are of fundamental importance in the life of our reservoirs, can be realized fully when it is understood how much of the over-production has come from old fields. Crude output, for instance, has been stepped up approximately a million barrels per day over the prewar figure of approximately 3,800,000 barrels. Of this increase only about 40 percent came from new fields.

Thus the strain on the old established proven fields was tremendous and there has hardly been an area in the entire country where production has not exceeded the maximum efficiency rate.

With all the major restrictions of government on the industry in process of removal, or having already been removed, the industry is rapidly being put on its own again. It has the extreme satisfaction of a job well done in supplying oil to win the war. Since Pearl Harbor, and even before, all industry effort has been toward V-E and V-J days, and how well that effort has succeeded, the world knows.

With the same application to peacetime problems that achieved so much during the war, the industry should move into a period of progress and prosperity unprecedented. Difficult and confused times may lie ahead, but however tedious, they cannot compare with the horrors of war. The industry has all the experience necessary for solving its problems. The energy and application depend upon the leaders, but experience has also shown that capable leaders are not lacking. Hence the future of the industry is in its own hands.

Liquefied Petroleum Gas Industry Growing

PEACETIME expansion of the liquefied petroleum gas industry is certain to have its impact on the petroleum industry. Almost immediately, household installations of liquefied petroleum gas are expected to be resumed at the rate of 500,000 annually. There are still 13,000,000 homes in the United States, beyond the gas mains.

Under the title of "Packaged Fuel," a recent issue of *Capper's Farmer* noted future uses for liquefied petroleum gas, including heating homes, sterilizing milk utensils or other equipment, brooder heating, pasteurizing, running tractors, killing weeds and heating orchards.

"Growth of the liquefied petroleum gas business," it continued, "has been phenomenal due to modern science, the petroleum industry and appliance manufacturers. In 1922 the United States Bureau of Mines reported 223,000 gallons were marketed. Twenty years later the total was 585,440,000 gallons. Industrial use in war production popped the gallonage to 785,000,000 for 1944. None of these figures includes uses of the gases destined for synthetic rubber or aviation gasoline. Household or domestic users were estimated to total 1,950,000, the last of December, 1944. They consumed 392,000,000 gallons during the year. One authority estimates 12½ percent of the gas ranges in the United States are now operating on this fuel."

Intensive Research Builds for Prosperity

ENCOURAGEMENT by tax and patent law revisions of intensive industrial research has been pointed out as projects which Congress should place high on its current agenda.

A corollary to a zealous program of research, no one will debate, would be jobs, incomes and more, better and cheaper goods and services.

American ingenuity played a major role in the victory of the Allies and it is the same ingenuity to which America is looking to industry for peacetime jobs and prosperity, the National Association of Manufacturers is pointing out.

"American industry leads the world in the application of science to the improvement of living standards," NAM declares in a publication on "Industry's View on Leadership in Industrial Research." "Few industries have a growth curve comparable with that of industrial research for the last quarter of a century. It has, in fact, itself become one of America's major industries. Postwar growth is expected to be even faster than that of the period between the wars."

The recent report of Dr. Vannevar Bush, director, Office of Scientific Research and Development on "Science—the Endless Frontier" paid high tribute to American industry's contribution to research. It showed that between the two World Wars industrial research in the United States grew almost tenfold, from an expenditure of $2.9 million in 1920 to $23.4 million in 1940.

Indications are that this trend will continue, but as NAM warns, a shortage of technical personnel to staff laboratories will be a serious handicap. Patent protection is another essential to the retention and advancement of America's supremacy in invention and research. Constructive legislation for improvement of the United States patent system is important as are Internal Revenue Code changes which will remove uncertainties in regard to the deductibility of research and development expenditures in figuring corporation income taxes.

In other words, given half a chance, this research program will continue and from it will flow the essentials to American prosperity, viz., jobs, incomes, more, better and cheaper goods and services.

Texas Production Cut Is Reasonable

UNDOUBTEDLY many may think the nearly 400,000-barrel per day reduction ordered in Texas crude production during September by the Texas Railroad Commission is pretty steep. However, when everything is considered the action seems reasonable.

Because it is impossible to figure military and export needs, the total demand for September can be estimated at many levels. However, now that fighting has ceased and lend-lease has been terminated, an immediate decrease of 800,000 barrels per day in needs of these operations, as some expect, does not appear unlikely. This would be partly offset, of course, by a gain in civilian use due to lifting of gasoline rationing. However, it is improbable the latter will constitute an increase of more than 200,000 barrels. This would leave a net decrease of 600,000 barrels per day. If Texas is to bear ⅓ of the national curtailment, as generally anticipated because it is the marginal supply area, the cut back of the commission is in line.

Moreover, actual production may not be cut back to the level the commission calculates, because many fields that have been unable to produce their allowable will be able to meet their new lower quota.

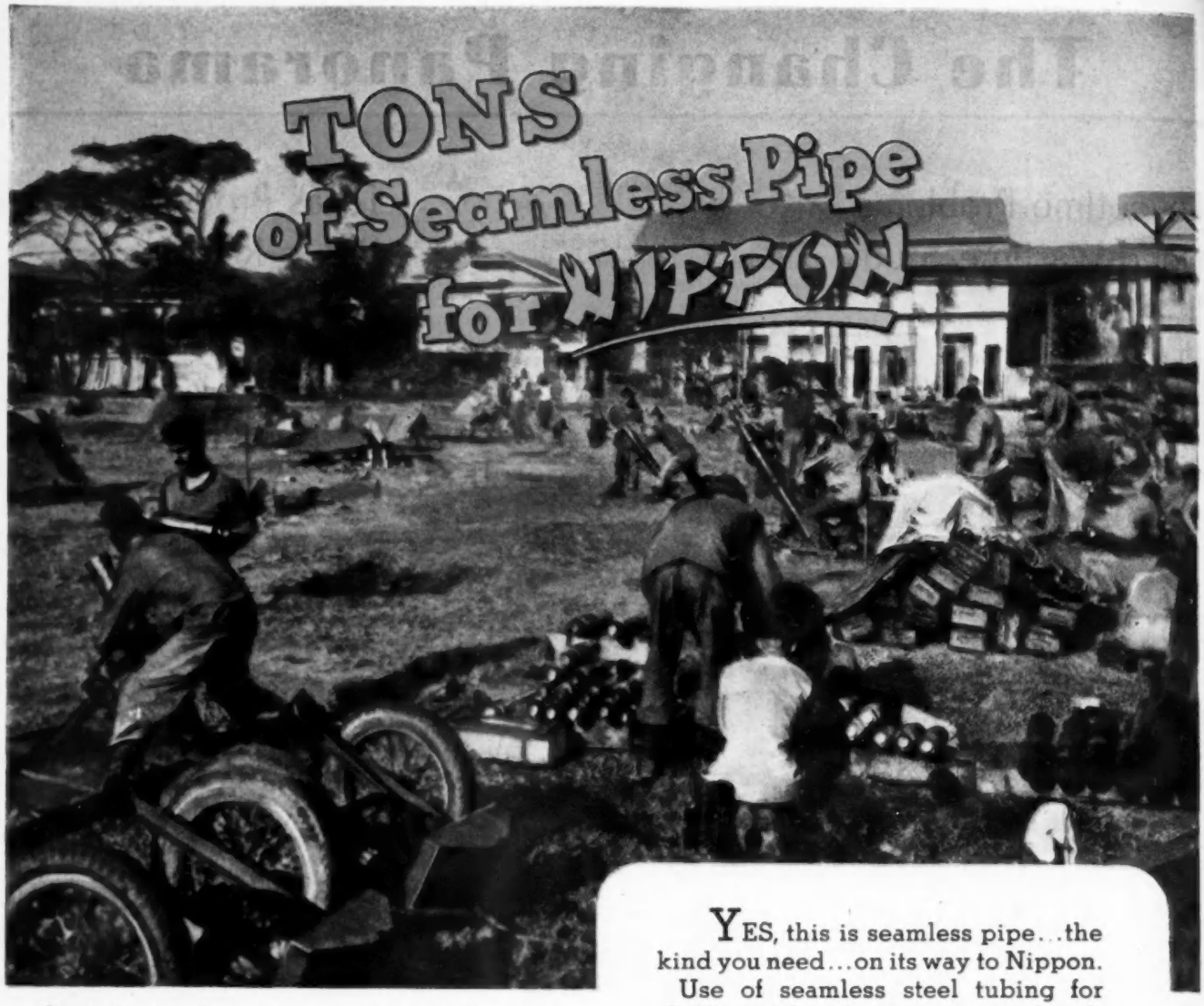
In view of the low level of stocks, the Texas cut may mean a tight crude supply situation during September. There may be some local spots where supply will be actually short. For example, difficulty may be experienced in operating the Big Inch pipe line at a rate of 240,000 barrels daily (a reduction of 60,000 barrels) as planned. However, it will be better to prevent building up stocks too rapidly or too much, so as to avoid prolongment and intensification of the industry's production conversion problems.

Furthermore, the commission's decision to obtain the reduction by reducing the number of producing days makes it easy to increase production if it is seen as being advisable. All that would be necessary would be to lift one or two of the producing holidays. In addition, the next statewide hearing will be held September 14, only four days away, and the commission could issue an emergency order immediately afterward.

The action of the commission shows that its members are aware of the big cut in production that must take place with shrinkage of abnormal military consumption, and that they are determined to adjust production so as not to permit waste through excessive stock accumulations.

Within 10 years jet-propelled air transports will come into use. In the interim, combination of jets with conventional engines or propeller turbine engines will bridge the gap.

—M. F. VANIK,
Engineer for Boeing
Aircraft Company.



Somewhere on Luzon one crew of a U.S. Chemical Warfare unit fires volleys of 4.2 mortar shells. Official U.S. Army Signal Corps photograph.

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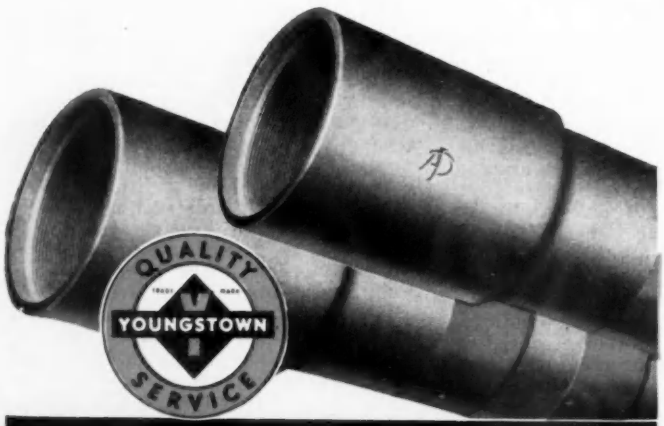

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Oil Uses for the Atom

By R. E. FEARON, Physicist
Consultant for Well Surveys, Incorporated

WHEN this article was requested of me, it was suggested that perhaps I should write some remarks on the future applications of atomic (nuclear) energy by the oil industry. This I intend to do, but because it is much too early to dissect the new knowledge, lacking a thorough understanding of how to make such a dissection, I shall first dwell a bit on the romantic aspects of these modern discoveries.

Not on Okinawa, nor at the summit of the volcanic cone of Surabachi, did the most significant event of this war take place, but rather the great event occurred in our own U. S. A., near Santa Fe, New Mexico, about the middle of July. It was here that two wars were won in the successful tryout of the "atomic bomb": the war against the Mikado, which the mighty new weapon has humbled, and the war against the stubbornness of nature, which so long has held from us the secret of the internal energy of the atomic nucleus.

Knowledge and Memory

Today we pick up arrowheads on old Indian battlegrounds, or perhaps discover a skull on a place where Egyptians fought, without ourselves knowing who were the leaders of the armies; we do not know what they were fighting for; we do not know who won. We do not care. At the same time, perhaps, Agricola, the first metallurgist, may have been pounding out an implement from a new kind of metal. We have forgotten Agricola, too, but today the influence of the things he did increases constantly, whereas we hardly know that those ancient battles occurred at all. Today we remember Okinawa, and we shall remember it tomorraw, too. But the atomic bomb will change the face of the world through all the centuries to come. We will be compelled to remember it with increasing intensity as time passes. Mankind discovered the wheel and axle; mankind found out how to temper iron; mankind has utilized steam and electricity, but at last, and at the climactic moment of the greatest war in recent history, we have discovered a new and hidden source of energy, tremendously available, and surpassingly great in its magnitude. And these superlatives are hardly sufficient to properly state the case. Perhaps I am one who sees visions and dream dreams, but be that as it may, these visions are the panorama of the future, and these dreams are as solid as granite mountains. I shall set forth the facts on which these assertions rest.

AUTHORS NOTE: The scope of this article has been deliberately limited to the consideration of Uranium 235 as a possible source of atomic power. This is done with full realization that other substances may be, and probably are being used to produce the nuclear chain reaction in the atomic bomb. Any of these may prove to be of use industrially, but because prewar data on the manufacture and properties of these does not exist, and because information from the government project has not been released in full, they are omitted from the discussion.

The Greatest Sources of Energy

During each era of man's history, there has been some way of storing energy and using it to accomplish things that could not be done with the bare hands. One of the earliest methods of storing energy was by imparting motion to a spear or hammer. Later, energy was stored in the form of elastic strain of materials, as in the shaft of a bow. Relatively recently, energy has been stored in compressed air, and in the last few decades, energy has been kept in a very available form by the use of gasoline, and in high explosives. The most compact storage of energy since time began is none of these, but the Uranium 235, which, very likely, is the prime mover of the atomic bomb.

The amount of energy stored in a pound of material, by each of several methods is shown in Chart I.

In order to get the bar corresponding to the Uranium 235 on our paper, it has been necessary to very much contract the scale of measurement corresponding with the higher values of energy.

Here is some timely conjecture on whether the unlocked energy of the stars will be an ally or a rival of petroleum

Nuclear vs. Atomic Energy

When TNT explodes, the energy is evolved because the atoms present in the original TNT molecule rearrange themselves in new and stabler ways, making up new molecules with less available energy. The TNT bomb is, therefore, an "atomic bomb," because its energy is derived by rearranging atoms into new combinations. The atomic bomb of recent history is, however, really a nuclear bomb, since its energy is not derived by rearranging whole atoms in new ways, but rather by rearranging the matter of the inmost part of the atom, the nucleus, into new forms, creating new nuclei and new and different atoms thereby. In the explosion of the fission or atomic bomb, as in the explosion of individual atoms in a radioactive substance, there is a real transmutation of elements. Practically every known spontaneous transmutation of elements produces immensely more energy per unit weight of material involved than is derived when atoms are rearranged into new molecules.

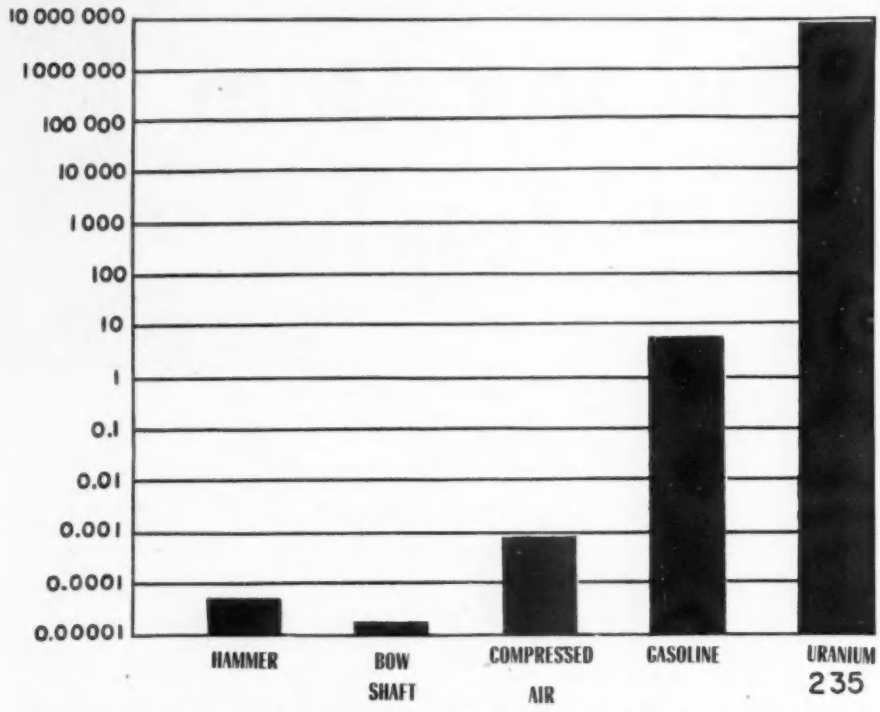
Table 1 illustrates these facts.

Atom Splitting on a Grand Scale

In ordinary radioactive processes the nuclei of the atoms split, but the fragments are so unequal that it is as if a little chip was knocked off a sphere of neuclear matter. In the fission of the uranium 235, however, the nucleus of the uranium atom practically breaks in two in the middle. The energy produced when a uranium atom undergoes fission is tremendously greater than the energy produced when little chips are knocked off, as can be seen by comparing item 5 with items 3 and 4 in Table 1. Moreover, the number of atoms splitting in a reasonable time in a pound or two of any available common radio element such as radium, is incomparably less than the number of atoms split when one pound of the active substance of an atomic (nuclear fission) bomb undergoes the fission explosion process. Table 2 illustrates these facts.

Furthermore, by means not publicly disclosed, the Uranium 235 can be made to undergo its atom-splitting pro-

Relative Effectiveness of Some Ways of Storing Energy



This chart shows the relative weight efficiency of various ways of storing energy, including Uranium 235, the postulated working substance of the atomic bomb. For compressed air, it has been assumed that one pound of air was confined at room temperature, at a pressure of ten atmospheres, and then permitted to expand against a piston too quickly to absorb any heat from its surroundings. The one-pound hammer was assumed to reach a speed of 100 feet per second. The data for the bow shaft was determined experimentally on a 35-pound bow furnished by Chas. D. Brewer of Tulsa.

cess when desired. The other examples of atom splitting noted in Table 2 are not subject to any such control. Truly then the explosion of an atomic bomb is an atom splitting process on a grand scale.

Controlled Atom Splitting

While the atomic bomb itself may be of use as an explosive in some large engineering projects, it is a question of major interest for other uses whether the tremendous energy available in the splitting (fission) of Uranium 235 cannot be liberated more slowly, at any desired rate. It is my opinion, as a nuclear physicist, that this can be readily done. In fact, I feel sure the problem is already solved.

Production of Uranium 235

Before considering the uses of the atom splitting process it is in order to see something of the probabilities we face in trying to extract Uranium 235 for industrial purposes. The Uranium 235 occurs in nature mixed with another kind of uranium known as Uranium 238. There is approximately 100 times as much Uranium 238 as there is of the 235 variety. The two kinds of uranium differ from each other only in the masses of their atomic nuclei, and in the ability of the Uranium 235 to undergo a splitting process in a controlled manner, or to cause an explosion, as desired. The atoms of the different kinds of uranium do not resist separation; they merely defy us to detect the difference between them.

There are, however, many kinds of physical differences between the two kinds of uranium and their respective chemical compounds. Most of these differences are small, but some are considerable. It is my opinion that the problem of extracting Uranium 235 from the naturally occurring mixture of uranium will be completely solved within a few years, to the extent that this separation will not represent a serious economic obstacle to the industrial use of atomic (nuclear) energy.

Availability of Uranium in Rocks

Rocks having 15×10^{-12} grams of radium per gram of rock will yield an amount of Uranium 235 which, if extracted would furnish nearly enough energy by atom splitting to correspond with the energy available from a weight of coal equal to the original weight of the rock. Many common rocks have much more Uranium 235, and good ores are over 100,000 times better. In view of these facts, energy from Uranium 235 can be very abundant, even though the better ores are comparatively scarce.

Products of Atom Splitting

With the above conclusions in view, it becomes expedient to consider what results from a nuclear fission (atom splitting) process. The fission of Uranium 235 directly or indirectly generates the following valuable products, some of which more or less overlap, but are set out separately in order to convey to the reader the most information:

1. Energy, which can be used to generate steam, or produce chemical reactions.
2. Gamma rays (like X-rays.)
3. Beta rays (rapidly moving electrons.)
4. A very strong stream of neutrons (moving neutral particles having approximately the mass of a hydrogen atom, but squeezed into enormously less space.)
5. New substances, made up of the larger fragments of the Uranium 235 nucleus.

TABLE 1

Substances Involved	Type of Process		Products	Energy Generated per Pound of Fuel Employed
	Atomic	Nuclear		
$C+O_2$	x	..	CO_2	4.15 KWH
$2H_2+O_2$	x	..	$2H_2O$	15.4 KWH
Ra	..	x	Rn+He	250,000 KWH
Th	..	x	Ms Th_1+He	220,000 KWH
U_{235}	..	x	Ba+Kr	9,000,000 KWH

Importance of Nuclear Power to Petroleum Industry

Applications of these products are bound to occur in all industries. I summarize here a few which I think will occur in connection with petroleum exploration, production and refining:

1. Chemical or Physical Tracers (Synthetic Products, Refining and Production: Wherever we wish to follow the course of a group of atoms through a series of chemical reactions, this may be done by identifying the desired group of atoms, by making them radioactive, or using non-radioactive atoms of unusual atomic weight. Such special atoms for use as chemical tracers may be made in new order of abundance and cheapness by using fission fragments of Uranium 235, or by using neutrons derived from Uranium 235 to manufacture these special groups of atoms out of ordinary ones.

To learn the actual physical location of some material which it is desired to identify, in the course of absorption, filtration, flow, or permeability measurements, or for observing distribution of materials in inaccessible places, radioactive tracers manufactured by nuclear fission methods may be used. For example, it is possible to identify permeable zones in the rock formations by using drilling mud to which a radioactive element has been added, and then making a radioactivity well log. Similarly, it is possible to identify the bullets used in perforating by radioactive matter, or one may identify a casing collar or a plug, if desired, by similar means. The distribution of cement may be followed by putting radioactive matter in it, and then making a radioactivity well log. In trying to force cleaning fluids through a stopped pipe in a refinery, with steam, the progress of the cleaning fluid into the stopped pipe may be followed, if the pipe is above ground, or only buried a few inches, by using a radioactive substance in the cleaning fluid, and a detector of gamma rays outside the pipe. The settlement of basic sediment and water from oil in long pipe lines may be followed by putting into the oil a radioactive contamination which will be separated with the basic sediment and water. Radioactive substances of over a hundred kinds, with chemical and radioactive properties adapted for almost every use, may be made abundantly and cheaply by the fission of Uranium 235.

2. Identification of Samples of Material. (Geology, Well Sampling): The various

rocks and minerals of the earth, as well as samples of natural or synthetic carbon compounds, may be bombarded by any or all of the radiations resulting from the fission of Uranium 235. There will be scattering of the original rations and production of new secondary rays of a different nature. These secondary rays may be used to study the samples, both photometrically and visually, to observe their properties, and the nature and distribution of the components entering into such samples. These methods of inspection have been available for years, but the extreme reduction in cost of sources of nuclear radiation will greatly broaden their field of application. In a geological sample, for instance, the beta rays derived from a radioactive source might readily be used to isolate fossil shells, foreign crystals of material included in a shale, or concretions, since all these would fluoresce in a way different from the background in which they lie. Color or intensity of light, or very likely both, would offer a ready basis for visual study in these cases. The strong flux of neutrons available would be particularly valuable and would open up a world of new possibilities, because of the extremely peculiar nature of the neutron rays. Since neutrons interact only with the nuclei of atoms, we have here a method for learning about the elements present in a sample, entirely apart from their state of combination. If we use crystal diffraction methods, on the other hand, it is possible to learn not only the state of combination of the elements present, but the type of crystallization, size of individual crystal, and whether or not the rock has been mechanically worked, as in metamorphosis. These observations would be generally useful for geological correlation, micro-paleontological studies, regional studies, and for geologic history and cosmology. Material to supply radiations needed for such purposes can be produced at low cost and in abundance by methods using the nuclear fission (atom splitting) of Uranium 235.

3. Study and Testing of Mechanical Components Used in Oilfields (Production—Pipeline): The scope and use of radiographic and fluoroscopic investigation of mechanical parts will increase vastly because of the new cheapness and convenience of application of gamma ray sources for such purposes. Moreover, it will be possible to select the gamma ray penetrating power for the job, something which has not been available as long as industrial radiography was tied down to the use of radium. For instance, radiography, or perhaps, merely radiation measurement, can be used to seek out and determine the extent of flaws or variations in the thickness of casing, or drill pipe, to determine presence of voids in castings, and to ascertain what was the cause of failure of sucker rods, drill pipe or casing in some instances. The availability of enough intensity of radiation to permit fluoroscopic methods will aid very greatly by helping to determine accurately the best direction and point of origin for radiation, and similarly, the high intensity will cut down on exposure time. Special precautions will be necessary, and trained personnel will have to be developed to take advantage of these opportunities. Radioactive materials for these control and inspection operations, and for studying the causes of failures, can be made abundantly and cheaply available by atom splitting of Uranium 235.

TABLE 2
(Nuclear Reactions)

SUBSTANCE	Energy Liberated per Pound of Material per Second (or During Time of Fission Explosion)	Products	No. of Trillions of Atoms Splitting per Pound per Second (or During Time of Fission Explosion)
Radium	13.2 Joules*	Rn+He	16.8
Thorium	.000015 Joules	Ms Th1+He	.000002
Uranium 235	32,900,000,000,000 Joules	Ba+Kr	1,170,000,000,000

* A Joule equals ten million ergs, equals one watt second

4. Use of Radiations to Generate Chemical Reactions (Refining, Synthetic Chemicals): Nuclear radiations, like heat, can be used to produce or accelerate chemical reactions of various kinds which may be desired in industry. These things are at the fringe of present knowledge, and we can see but dimly what the future holds. We do know, however, that some gaseous hydrocarbons may be transformed into liquid and solid ones by means of radiations derived from atom splitting. Such experiments have already been tried on methane and ethylene, in particular. Likewise, acetylene is transformed into a solid by means of nuclear rays. If gaseous or liquid hydrocarbons are exposed to rays derived from atom splitting, and if substances containing arsenic, phosphorus or sulphur and other such elements are present, compounds containing these elements generally will be formed. Ozone and nitrogen peroxide may be made from air or oxygen, and employed for any uses they may have in the oil business. Abundant quantities of radiation for all such purposes may be had, in the future, by atom splitting of Uranium 235.

Not all power sources will be operated by atomic (nuclear) energy.

So far, I have discussed new tools and methods of working which will aid the oil business in various ways. There is, however, the prospect that petroleum may be somewhat replaced as a source of energy with the advent of atom splitting. If the predictions I have made in earlier parts of this article prove correct, such a conclusion is inescapable. There is a saving feature from which petroleum producers can derive some comfort, nevertheless. It appears thus far that it will be impractical to try to construct sources of nuclear energy on a small scale. Every atom splitting power plant will need a lot of radiation shielding around it, in the form of lead or iron, and alternate layers of water or paraffin, to protect workmen against the powerful gamma rays and neutrons which would otherwise escape. Moreover, if the atom splitting energy is used to heat water, the water and the steam produced from it will be rendered radioactive by the enormous number of neutrons it absorbs. The iron walls of any boiler would become radioactive also. The radioactivity of the water itself would come about because of the transmutation of elements held in solution, or because of the transformation of heavy hydrogen in it to make hydrogen of atomic weight three, a radioactive element. It is my opinion, therefore, that engines of small horsepower, in places where electricity is not available, will continue to use gasoline. Also, the adaption of nuclear energy to aircraft uses presents very serious problems in all except the largest aircraft.

For large ships, and especially for submarines, there is a good chance that energy derived from atom splitting may displace other fuels. For heating, the possibility exists that large installations will use Uranium 235 or something similar, in place of other fuels. The net result to the petroleum industry will not necessarily be an injury, however, since atom splitting energy may sufficiently stimulate industries consuming petroleum to offset the losses. A general enlargement of industry, brought about by the new prime mover, would require more lubricants, more organic synthetics, and more rubber and rubber like products, many of which could be derived from petroleum.

Hotter Than the Insides of the Stars

There has been a great deal of speculation in the newspapers about the temperature and energy production of the atomic bomb at the moment of its explosion. Since it is so far from thermal equilibrium, it is probably meaningless to speak of temperature of the exploded bomb in any ordinary sense. This, and the fact that the nature of the products of the explosion is not surely known, account for the wide differences between the estimates of temperature which have been offered. According to authorities who studied Uranium 235 before the war, each atom of Uranium 235 generates 2.8 hundred billionths of a watt second when it is split in two. This is sufficient to raise the temperature of the mass to about 2 trillion degrees if we assume the products are Barium and Krypton atoms and neglect the energy received by the neutrons. If we include both atoms and neutrons, and assume that they all share the energy of the explosion equally, the temperature comes out around 700 billion degrees. If we assume that all the electrons are separate from the atom nuclei, and allow an equal share of the energy of the explosion to each one of these electrons, along with the atomic nuclei, the temperature is about 7 billion degrees. In presenting these figures, I have assumed less than perfect efficiency in using up the Uranium 235, which the bomb is assumed to contain, and I have supposed that, at the moment of explosion, there is a brief instant before the energy begins to be lost to material adjoining the Uranium 235. At the lowest estimate, the temperature is at least a 100 times hotter than the insides of most stars, and probably much hotter than anything else in the universe, anywhere. It is, therefore, a masterpiece of understatement to say that we have found the secret of the energy of the stars, for the stars have no energy like this, but ordinarily derive their power from a lower grade of atom-splitting reactions.

The author is indebted to Mr. Jay Callahan, Mr. C. E. Duller, and to Mrs. Fearon, for reading and criticizing the manuscript.

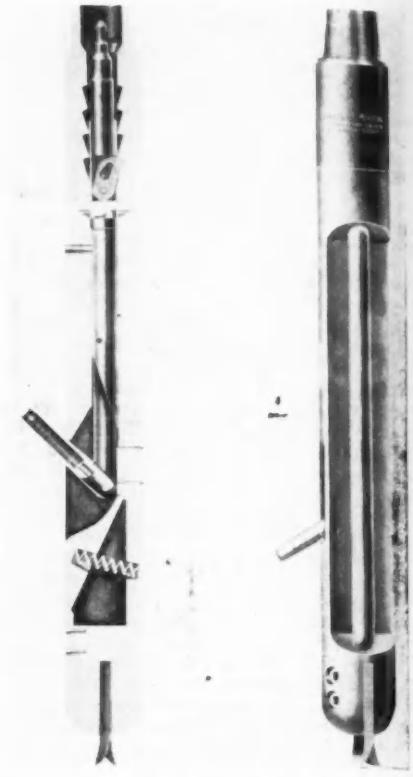
The Place of Mechanical

Sidewall Coring

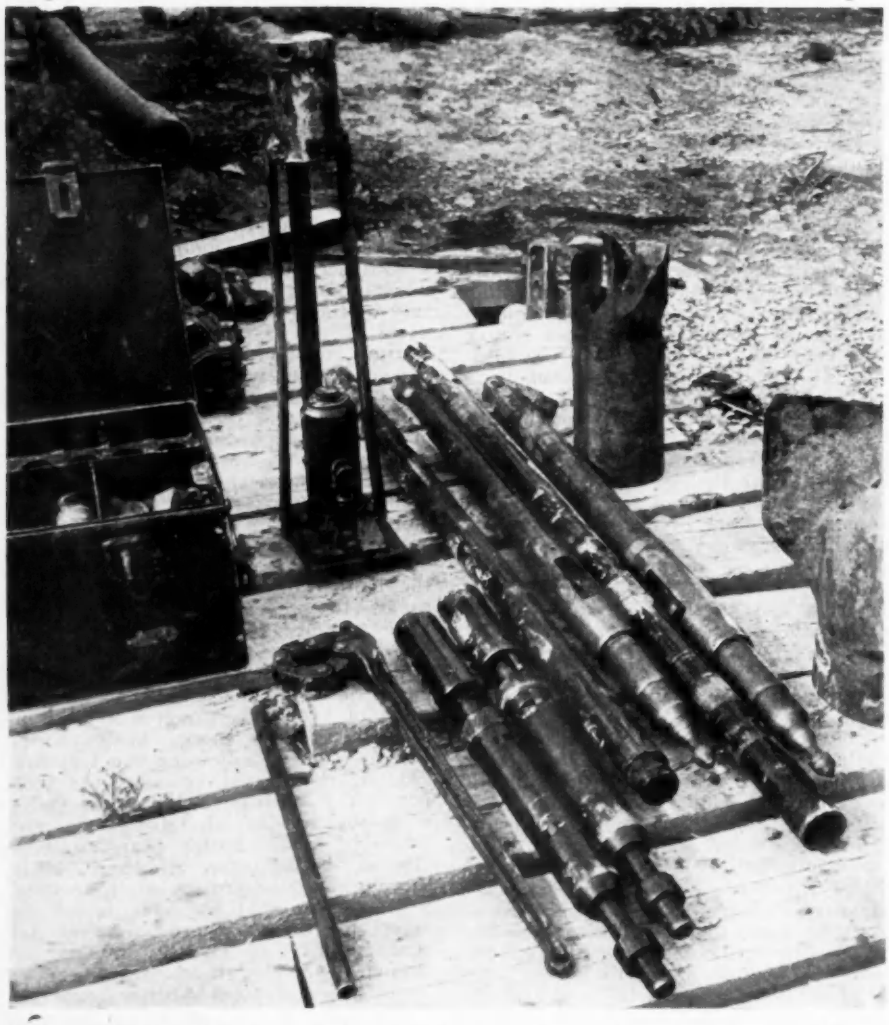
IN A Louisiana field the operator was preparing to set surface pipe. In line with good practice it was decided to obtain a sub-surface log, locating possible oil sands between the surface and the depth of the bore hole before setting casing.

Accordingly, the sub-surface log was made and strong "kicks" suggested the possibility of oil around 1700 feet—a section heretofore undiscovered by any drilling in this field. As a bit had long since pierced this depth, conventional coring was out; only the comparatively new method of sidewall coring could be used in obtaining formation cores to support the evidence of the electric log. The bore was cored from the side wall at the depth of the suspected pay and the recovered formation, being saturated with oil, definitely proved a new producing horizon in this field.

Thus, one of the valuable services rendered by sidewall coring is evident. Testing of formation previously drilled is only one way this method may be put to use. Many wells are now drilled with a new technique, involving the teamwork of the electric log and the sidewall coring tool. Many wells are now drilled to their contract depth, quickly, without operational breaks for conventional coring, and then electrically logged to determine sub-surface formation character. Stratum cores may be taken and casing run immediately. With the bore hole safely cased, sufficient time is therefore allowed to study the electric log and to examine laboratory analyses of the sidewall cores. Upon proof with the sidewall core of the producing horizon indicated by the electric log, perforation of the casing is conducted in the usual manner and the well completed.



Cut-away and full view photos of mechanical sidewall coring tool show simplicity of design and operation.



Tools used in sidewall coring operations include core tube assembly with latching mechanism, spearhead overshots, sinker bars, core tube tongs, hydraulic jack and stand, and tool box with small equipment.

The sidewall coring tool is not designed to replace conventional coring methods; it is the necessary complement, and used where conventional coring can not be accomplished, or where drilling practices are such that contract depth is reached without conventional cores being made. It is fast and provides cores as desired.

The mechanical sidewall coring tool is composed of two integral parts: (1) The body (or drill collar); (2) The inner core barrel assembly that is retrievable by wire line. The body is attached to the drill stem through means of a sub that contains stepped shoulder faces on its inside walls. This item is known as the latch sub; the inside shoulder faces anchor the core barrel assembly while coring operations are in progress.

The coring assembly may be lowered through the drill stem on a wire line, or it may be dropped and pumped down to its position in the body of the tool. As the core tube passes into the main body and comes in contact with a deflector, an alignment pin is sheared which permits the tube to be deflected into the side wall of the bore hole. This coring assembly is then locked into position and coring operations proceed.

One of the most ingenious features of the tool is the mechanism for guiding the removable core tube through a slot in the body of the tool. This mechanism comprises a "mule shoe," operative on a helix angle, on the shaft of the coring assembly and a similar mule shoe guide located in the main body of the tool. The mating of these two guides causes the coring assembly to orient

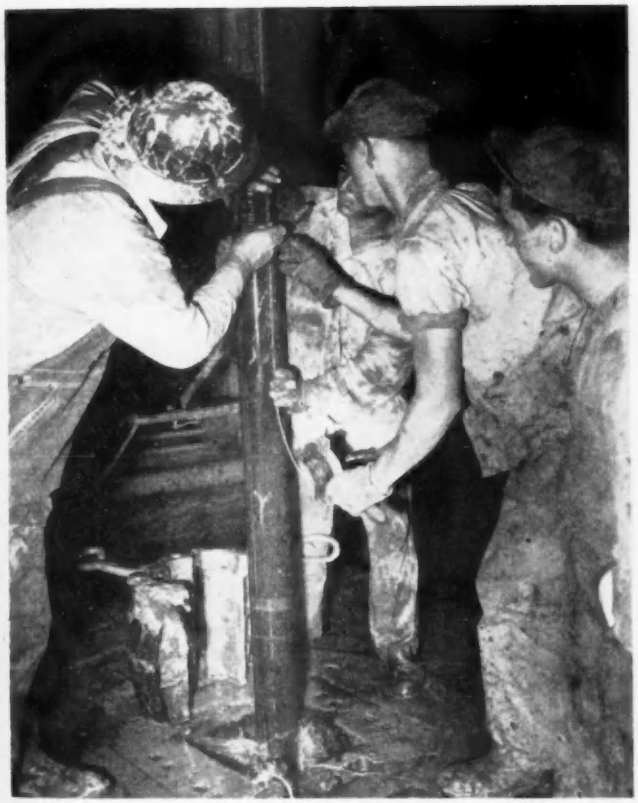
Left: Core tube is made up on running assembly through means of friction tongs. Right: Core tube assembly is run through drill pipe on wire line.

itself properly, allowing the tube to be deflected through the slot in the main body, and into the formation at an angle of approximately 30 degrees.

After the core tube assembly has reached its position in the body of the tool, the process of extracting a core from the formation is relatively simple. The tool operator lowers the drill string slowly, carefully observes the weight indicator. When the indicator shows weight being taken, the core tube is beginning to "bite" into the walls of the hole. Dependent upon the formation, the amount of weight taken by the tool will remain fairly constant unless the operator continues to lower until the tube is pushed down through the formation.

To prevent this happening, the distance of safe travel is carefully marked on the pipe above the rotary table; the operator knows exactly how far to lower the string to obtain the core. The core tube may be fractured if excessive weight is placed upon it, and generally a force of 11 "points" is considered maximum. After the core has been cut, the drill stem is raised to its original position and the core tube assembly withdrawn through means of a wire line overshot. An upward pull releases the latching device of this assembly, permitting it to be withdrawn through the drill pipe.

After the core tube assembly has reached the rig floor, the tube proper may be removed by means of specially-designed friction tongs. The core is extracted from the tube through means of a hydraulic jack, a stand and a pusher rod. The length of core is governed by the length of the core tube used, by the character of the formation, and the condition of the hole. Cores generally measure 1¼-inch in diameter and range in length from four to ten inches. The rate of core recovery, of course, is dependent upon operating depth, but experience has shown that cores may average one to two per hour from average depths. It has been the experience of the operators that any formation which is drillable with a rock bit at the rate of three or four feet per hour, or faster, can be cored successfully.



Left: Tool operator marks on pipe above rotary table, the distance drill stem should be lowered to obtain core. By carefully observing this distance and weight indicator, fracture of core tube is prevented. Right: Core is retrieved from tube by means of hydraulic jack and specially designed stand.

—All photos courtesy Houston Oilfield Materials Company.

Quad Landing Craft Engines Drill Deep Well

"Quad" engines being installed on Cities Service Oil Company's Lawson 1 well.

Multiple Engine Combinations Developed for Invasion Are Success in Oil Field Operations

By HARRY A. HESS, Staff Writer

THE unique multiple engine combinations developed during the war already have been applied successfully to oil field drilling operations. A rig powered with eight diesel engines delivering their output through only two driveshafts was used by Loffland Brothers Drilling Company in drilling the lower portion of Cities Service Oil Company's Lawson 1.

This well, located near Lindsay, in McClain County, Oklahoma, discovered the deepest oil production in the Mid-Continent area when it flowed 1292 barrels of 45-gravity oil and 3,750,000 cubic feet of gas from perforations at 10,942-90 feet.

Powerful, Compact

Many of the requirements that prompted the design of these multiple engine hookups for invasion landing craft also are found in oil field drilling operations. A maximum of power in a minimum of weight and space, being one similarity. Another is the need for flexibility in power, which is provided by the ability to compound the maximum horsepower of all the engines or to operate any number of the engines, even one singly if desired. The latter feature also offers possibilities for fuel consumption economy, as well as freedom from shutdowns should some of the engines fail.

The principle of combining basic engines into multiples had its inception in the form of "twin" engine units, consisting of a pair of six-cylinder engines placed side by side. The advent of larger type invasion craft requiring still greater engine power resulted in the "quad" engine unit, consisting of four 6-cylinder engines coupled to deliver power to a single drive shaft. In the type of craft used most extensively two "quads," or a total of eight engines, are used. Each "quad" drives separate propellers and has its own gear box, propeller shaft, as well as propeller. A symmetrical block permits rotation of the crank in either direction and also the mounting of accessories on either side of the engine. This allows for replacement of any engine by a single, standard unit.

With modification for use as industrial power, the same landing craft "quad" engine units are powering Loffland Brothers' rig. Like landing craft installations, two sets of "quads" are used. Each drilling rig "quad" consists of four 4¼ by 5-inch two-cycle, six-cylinder diesel engines, individually clutched and coupled together through a common gear box to deliver 520-brake horsepower at 900 revolutions per minute through a single shaft with an engine speed of 1600 revolutions per minute.

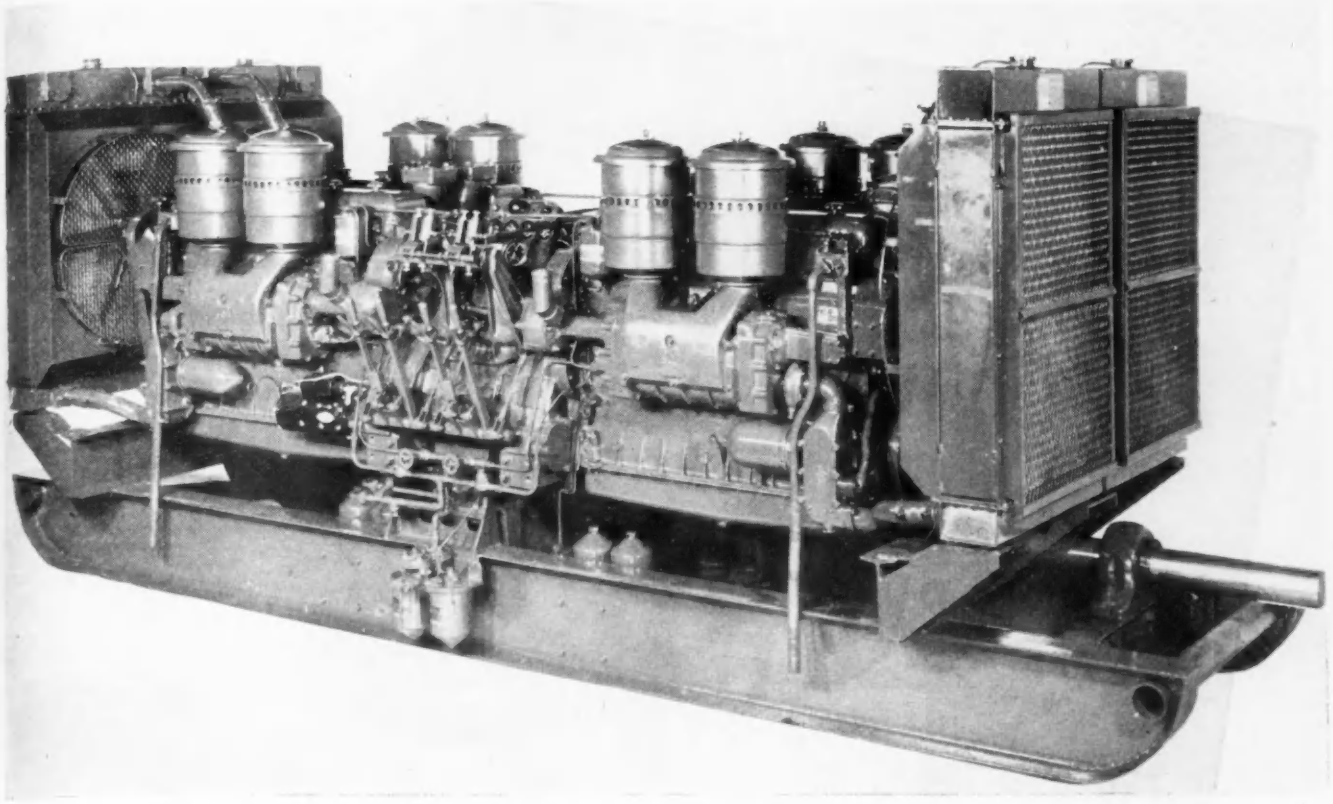
Through a V-belt arrangement the motive energy of the two driveshafts can be compounded to give a total of 1040 horsepower, which can be directed toward either the pumps or the draw works. These engine combinations are so designed that they are assembled into a compact space, and each is mounted on skids. The weight is only 20 pounds per horsepower.

Adjustment Easy

All working parts are easily reached for adjustment. The water, fuel and lubricating systems are individual for each engine, which makes it possible for any engine to be "taken out" for repairs or to be shut down when maximum power is not required. Each set of "quads" has a centrally located clutch for each engine, providing a ready means of accomplishing this operation. Only one engine in each "quad" is equipped with a starter, but the other engines can be started by merely throwning in the clutch.

The "quad" engines were installed by the Loffland Brothers on the Lawson well when it was 8500 feet deep, and were used to drill to 10,995 feet. No engine trouble was experienced and they already are being used on another well. The "twin" engines mentioned above also have been used for drilling purposes, but Loffland Brothers' rig is the first to employ the "quad" units.

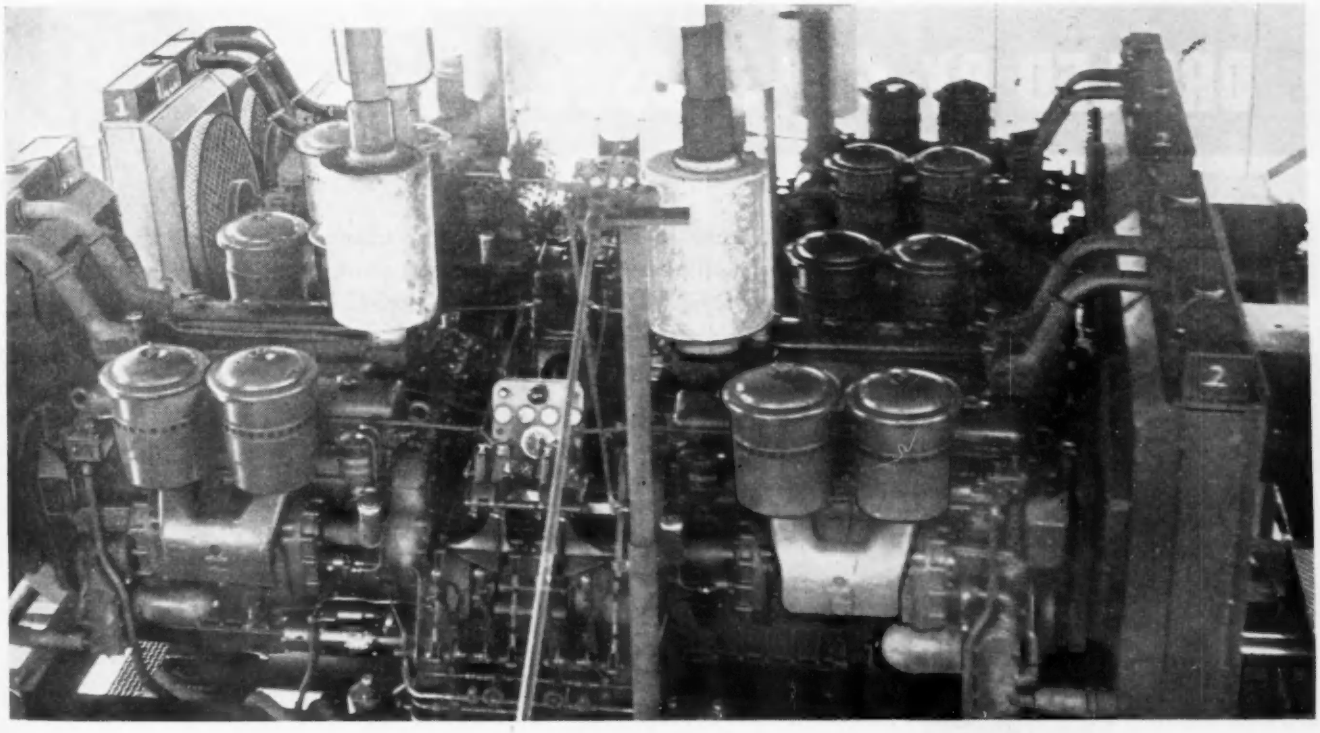
Diesel oil was used to drill Lawson 1, however gasoline and natural gas have



Closeup of "quad" industrial power unit. The four centrally located clutch controls may be seen in the center of the picture. The single slow-speed shaft shows at lower right.

been tried in this type of motor with favorable results. Experimental ordnance engines have been rigged up with two fuel tanks, one containing gasoline and the other diesel oil. It was found, contrary to expectation, that when the gasoline was injected into the hot air of the combustion chamber which is under a compression ratio of 16 to 1 that combustion was actually slower than that of diesel fuel.

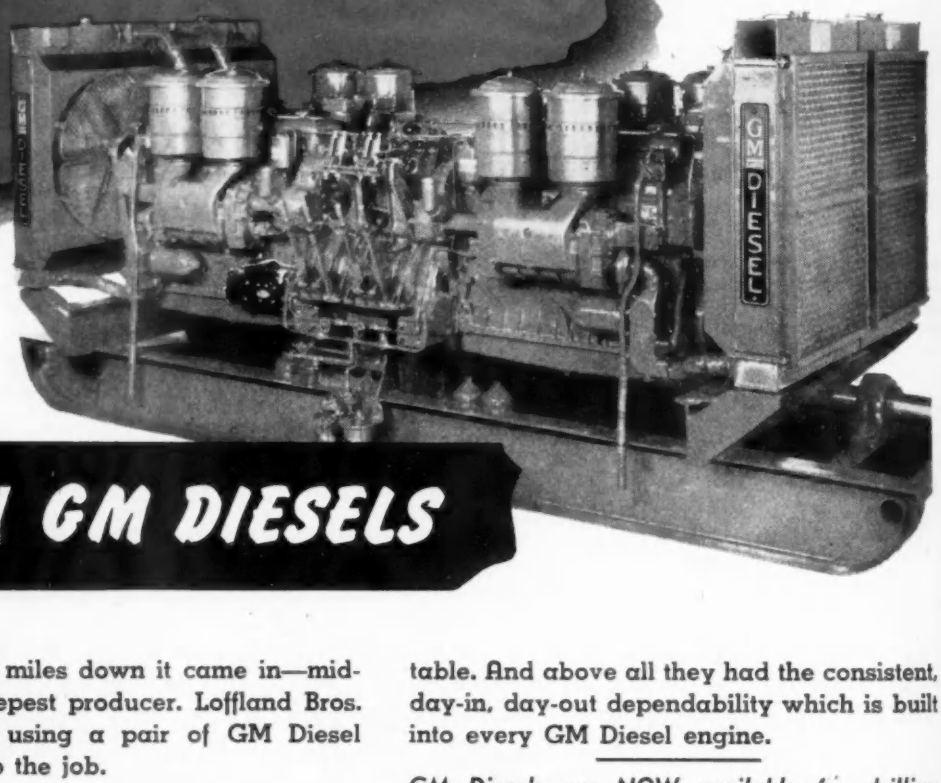
In the case of natural gas, the difficulty is in maintaining gas to air ratios, which causes irregular firing at light loads. This was overcome by automatic governor conversion which injects gas every second or third revolution when low power output is required. These types of fueling, however, have not reached the practical application stage sufficiently to be used on drilling rigs.



"Quads" at work on the Loffland Brothers rig. Throttle control from drillers station runs above clutch levers and instrument panels. Single slow speed shaft is in right foreground.

10,997 feet

DEEPEST MID-CONTINENT PRODUCER



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The War's Influence On Geophysics

By A. R. McTEE, Staff Writer

THOUGHT of forthcoming developments in the oil industry may lead to speculation on what changes will be brought about in the field of geophysical prospecting by the startling achievements in science being applied to wartime problems. Offhand it would seem likely that some of the notable advances—radar, for instance—might have great influence on geophysical activity both in the routine of exploration and the type of equipment used. Again, research and advancement in electronics would seem almost certain to have their effect in any line of endeavor where electrical devices are used—seismograph surveying, for example.

Realizing, however, that the temptation to speculate is oftentimes not well founded, THE OIL WEEKLY has endeavored to appraise the possibilities of improvement and to determine to what extent changes have already come about. A brief survey was made among leading geophysicists, companies manufacturing equipment, and operators of geophysical apparatus. Because of the secret nature of geophysics activities, it usually is impossible to obtain comprehensive advance information on any new developments in technique or equipment, usually. Hence, the survey is naturally limited in scope. At the same time, some observations were obtained which give a clew to what may be in store.

No Basic Change

That no revolutionary or basic change or improvement in geophysical methods or equipment can be expected from the war is a general opinion. This conclusion is based upon what geologists and geophysicists term the criteria or fundamentals necessary in an instrument or method before they can have a basic effect on exploration. These criteria as outlined by W. M. Rust, Jr., geophysics research division head, Humble Oil and Refining Company, in an address before the Society of Exploration Geophysicists in Tulsa last April, include: First, the method must involve physical measurements of some property of the earth, using the term "physical" including chemical, biological and so on, to distinguish from "psychical." Second, the measurments must give reproducible results, the term reproducible requiring some explanation. Third, the process must be able to compete, on the basis of economics, with existing methods. This involves both the cost of operation and the value of the results. Fourth, the method must have a significant relation to the occurrence of oil. Fifth, the method must have a teachable interpretation. Up to now, no new method or instrument has appeared from war research, as far as is known, that meets these five criteria.

That some advances in equipment and also improved techniques of surveying will follow, we can be assured. Equipment will be lighter, better controlled and will probably have greater sensitivity, due to improvements in some of the parts.

Normal Growth

However, it is pointed out that these improvements are a part of the normal growth that is taking place in the geophysics industry. Advancement is logical since efforts are constantly being made to perfect better devices, and doubt is expressed by some as to whether the war has had any material influence on their acceleration.

After World War I great strides resulted in geophysical exploration methods as a result of developments in the field of sonics. Sound waves were used in numerous detection activities such as locating gun positions, approximating the distance of submarines from convoys, etc. It was but natural that these developments should be applied to seismograph operations that depend largely on refraction and reflection for results.

World War II has brought significant discoveries in electronics, radar, and the whole realm of radio communication. And as observed by one authority, "In regard to their mineral locating possibilities, radio methods have been fertile soil for the imagination of laymen, radio amateurs, and even physicists." Rust, in his paper on "Evaluation of New Geoghysical Methods," referred to above, noted that the rewards which the oil situation created by the war promises the fortunate inventor, "coupled with the availability of wartime technological miracles, such as some of the gadgets which drove the Nazi submarines to cover, radar and other still secret developments, will result in a stream of proposals of new geophysical methods and modifications of old methods. Radar may well replace the witchhazel fork. When this flood comes, from our own men and from outsiders, we will be faced with a two-fold problem of extraordinary difficulty. First, we must recognize and adopt any proposal of real merit. Second, we must condemn, with the least possible expenditure of money and effort, all proposals which have no real merit."

Radar and advances in electronics are likely to be felt, but no fundamental change is expected

A great deal of publicity has been given in the popular magazines to the possible use of radar in oil and metal detection, and there seems to be a natural conclusion in the minds of many people that it will be linked up with the finding of oil. But there is much scepticism among geophysicists.

Serious Limitation

Radar is used in our planes now to map the terrain surface by reflection of short electromagnetic waves. This fact alone, it is said, indicates that it is not likely that the present wave lengths used in radar will have sufficient penetration, and this is a serious fundamental limitation to the application of radar in prospecting for oil. It is emphasized repeatedly that short radio waves do not penetrate the earth, hence they are likely to have much effect on prospecting.

While admitting that radar may not present any direct application in exploration work, indirect uses are noted. As an adjunct to reflection, seismic and gravimeter work, radar may be of consequence. Electronic research will show up in the construction of electronic geophysical equipment. Such progress probably will appear immediately in the construction of magnetic surveying instruments suitable for use in aircraft, and surveying by aircraft is predicted as a development soon to be realized.

Surveying by airplane with whatever use may be made of electronics and radar might prove far-reaching in its influence on geophysical prospecting. No imagination is required to realize that a great deal of oil has been discovered without the use of any penetration device other than the drilling bit. Before the day of geophysics, the surface geologist made little use of penetration in his appraisals. Practically all his observations had to do with surface features. It has now been established that the soil character, even to its density, is affected by deposits of oil underneath. This has resulted in an entirely new field of scientific activity in exploring for oil, namely geochemistry. It may be possible that radar can be used as a correlating medium between geochemistry and geophysics. The fact that radar does not penetrate the earth does not exclude the possibility of it becoming a major factor in geophysical prospecting in the minds of a few geophysicists.

They believe it is not too fanciful to suggest that radar may be used in making surveys from the air which will reveal as much as has heretofore been obtained through penetration devices or underground surveying.

Aerial surveying may make wide use of color photography as an aid in correlation. It is known that color of the vegetation is affected by the soil, but these color variations are not detectable from the ground. They do show up in pictures taken from above, however. Investigation in this field is not yet very far advanced, but certainly it is due for much attention as time goes on.

Weight Reduction

Electronic research will result in reduction in weight and probably the size of electrical instruments. The trend toward reducing the weight of prospecting equipment is important since frequently, due to the terrain, the instruments must be carried by the operators. A portable gravity meter was announced recently, weighing only 28 pounds. It is temperature compensated, and the current required for maintaining the temperature is so low that a single motorcycle battery will keep it unaffected by outside temperature throughout the day. Weight of the entire assembly, including the meter, back pack and battery, is only 45 pounds. The back pack holds the meter so that the entire outfit fits snugly on a man's back.

Actual practice of geophysical prospecting may be somewhat changed by wartime developments such as improved transportation, air transport of heavy equipment with its possibilities for isolated regions, the use of lighter metals such as magnesium in auxiliary equipment, improvements in explosives and the method of handling them, and advancement in communication equipment and procedures. Also, the comfort of geophysics crews may be greatly increased on remote locations by the use of such simple things as the insecticides being used by our soldiers, improvements in portable camping equipment, and even clothing used by the Army, that is suitable for tropical climates. Though remote in their application, all these affect the efficiency of a crew when operating in a foreign country or in a location where everything has to be shipped in.

A notable advance in the use of gravity meters has been made in surveying submerged areas. Though not strictly a wartime development, this use of the gravimeter has been greatest during the past few years: Extensive surveys have been made with success in a good many locations, including the Gulf of Mexico off the Texas and Louisiana Gulf Coast, off Florida, in the West Indies, and in Lake Maracaibo in Venezuela. Operators who have made these surveys are confident that wider use of the gravimeter in submerged districts is certain, that the problems common to this type of surveying are being gradually overcome, and that many new oil fields will be discovered from such surveys. In the East Indies there are vast areas of under-water territory due to be explored and tested for oil within the next few years. Much nearer home, there also are many districts along the coast where fields extend into the water and also many inland areas wholly or partly submerged, where much prospecting is yet to be done.

Gravimeters used for under-water work are of two types: one mounted on a tripod several feet above the water, the other enclosed and sealed so it can be dropped to bottom and the readings taken by remote control or by a diver who goes down with the gravimeter. The tripod type was developed for use in comparatively shallow water. Both types have advantages, though it readily can be seen that where it is possible to use the remote control apparatus, a good many complications are eliminated, such as weight and transportation of the diving bell and the auxiliary apparatus. Remote control reading, however, is sometimes very difficult when the surface of the water is rough.

Pioneered by Gulf

Gulf Research and Development Company pioneered the underwater gravimeter and the Gulf Oil Corporation has used it for a number of years. A complete account of the device with illustrations was presented by T. B. Pepper before the Annual Meeting of Geophysicists, in Chicago, April, 1940, and printed in the January, 1941, issue of "Geophysics."

In perfecting an instrument to be used on the bottom, Gulf tried to exhaust a number of possibilities and considered four types: a bell or housing containing the operator and the instrument; a submergible barge unit containing only the instrument; a pressure housing type where the instrument would be leveled directly by gravity with all other controls to be either automatic or manipulated by remote control from the surface; and a pressure housing type whereby the instrument would be leveled by remote control through the use of level indicators.

The last type, involving an instrument enclosed in a pressure housing and leveled by remote control, had possibilities, as Pepper pointed out, of being the lightest of all systems excepting the one with the leveling mechanism outside of the pressure housing. After everything was considered, it was decided that protection afforded the leveling mechanism when placed inside the pressure housing was an advantage which more than offset the disadvantage of added weight, so this type was built.

Constructed mostly of aluminum, the underwater assembly as finally perfected by Gulf weighs about 300 pounds out of water and 25 or 30 pounds under water. Since the unit is almost buoyant, additional weight can be placed where needed to insure the greatest stability under water. Lead weights up to 350 pounds are fastened to the tubular supporting structure for under-water operations. This additional weight can be quickly removed when it is desirable to carry the instrument to a land base, and three men can easily carry the outfit when the weights are removed.

As far as is known, no notable improvements have been made over the type of instrument perfected by the Gulf. A number of companies have such gravimeters and make under-water surveys.

Further Experiments

Although it cannot be properly classified as a method of prospecting yet, experiments are being conducted in the Gulf Coast by burying thermometers and noting differences in soil temperature as a means of locating structures. The idea is based on the difference in thermal conductivity of various masses in the ground. Salt domes, for example, have greater thermal conductivity than the surrounding masses, and the soil above a salt dome has a temperature several degrees higher than that more removed. The thermometers are buried from 12 to 75 feet deep, in a small hole. Although in its early state, this method is believed to have exploration possibilities and further research is planned to utilize it.

Seeds of Nationalized Transportation Professed Seen in Congressional Probes

Transportation interests were disclosed last week to see in the projected congressional investigations of transportation policy the seeds of a possible move to nationalize all transport agencies in this country, which may shortly be the only nation in the world in which transportation is not owned and operated by government.

While British transportation today is privately operated, as in the United States, it is pointed out that nationalization is one of the first aims of the new labor government.

It is pointed out that the old National Resources Planning Board made a tentative recommendation leading to government ownership some years ago in a suggestion that the government purchase railroad rights-of-way and terminals, make them part of the public domain, and lease them back to private operators.

At the same time, the government now owns the two largest pipelines in the country, a large quantity of inland-waterway equipment and a great fleet of tankers.

Although transportation industry spokesmen have raised the issue—and vociferously—there is no indication that anyone on the congressional committees which will investigate the subject or in high place in the administration is thinking along the lines of government ownership. The pressure of Congress and administration leaders for maximum speed in lifting the wartime controls has been, up to the present at least evidence to the contrary.

July Oil Tax Collections Shows 100 Percent Gain

Treasury collections from the three federal oil taxes in July showed an increase of 100 percent over the corresponding month last year, the Internal Revenue Bureau reported.

Lubricating-oil tax collections reached a record high of $13,644,040, compared with $5,473,271 in July, 1944, while receipts from gasoline were $39,517,894 against $22,213,653, and from pipe line transportation $1,328,145 against $1,120,079.

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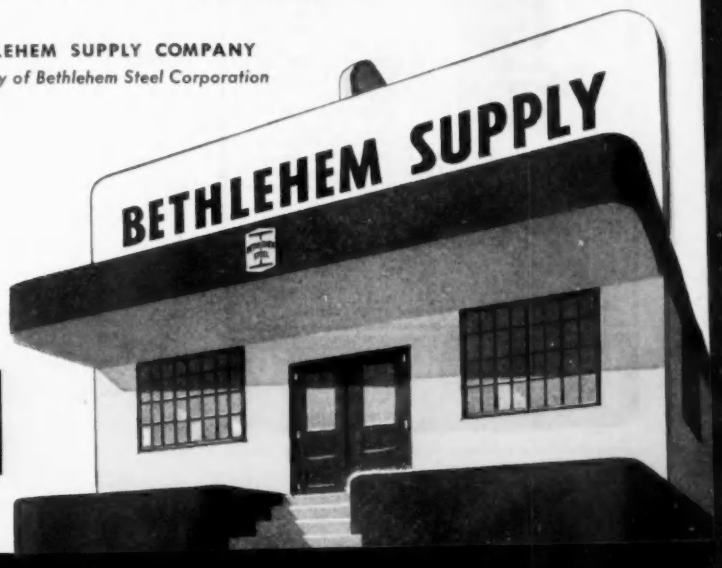

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Swinging Arm Places and Stores Pipe Thread Joint Dope Bucket to Clear Floor Area

THREAD DOPING

The dope bucket is often one of the most-used, yet least cared-for pieces of equipment on the drilling rig floor. If temporarily set aside it often times gets under foot and frequently many become a hazard to the men working about the rotary table. To do away with this bothersome feature, the crew of one company devised and built a swinging arm device having at its outer end a circular container in which is set the dope bucket. The arm is all-welded of light pipe and is well braced at its hinge point. The horizontal arm of 1½-inch pipe is welded to a 12-inch vertical hinge piece, the later turning inside a similar length of 2-inch pipe. The socket piece is welded to the back side of the weight indicator panel post.

The arm may be built to any desired length depending upon the rig floor layout. When swung out toward the table the dope bucket should be within easy arm's reach and when pushed back is against the front of the drawworks. The circular holder at the end of the arm permits rapid replacement of buckets when refilling; and for disassembly when tearing down the rig, the arm may be lifted out from its socket and carried separately.

Right-and-Left Nipple and Collar Provide Adjustment

MUD-LINE SUPPORT

To support the mud line where it turns vertically to the standpipe run, one drilling superintendent uses a stiff-leg or brace which is adjustable to insure the desired slope to the line, and which serves as back-up for the turnbuckle which snubs vibration. The support consists of two pieces of extra heavy 3-inch pipe, the upper end fitted with a welded saddle to support the mud line, the bottom welded to a plate to give ample bearing surface.

The other two ends of the pipe pieces are fitted with halves of a right- and left-hand coupling, which is cut in two and the cut ends welded to the ends of the pipe. In the facing ends of the coupling is placed a right- and left-hand threaded nipple, through the unthreaded portion of which has been drilled a hole to take the pointed end of a bar to provide leverage for setting tight.

The brace is placed under the line, the adjustable section shifted until the line is properly leveled, and then the turnbuckle pulled tight, anchoring the line in the saddle and relieving the threaded coupling of the strain of forcing the pipe into place—the adjustment being made on the threaded section before tension is set up in the hold-down.

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DRILLING HINTS

Full-Length Heater and Shelter for Driller

A worthwhile improvement over the facilities ordinarily provided for the comfort of the driller on cold night tours is the combination seat and heater illustrated. Made entirely of scrap materials, the assembly consists of two panels of steam pipes, upright and at right angles to each other. Across the intervening space is laid a board seat. The vertical pipes of each panel are welded into headers at both top and bottom. Stationed close to the edge of the derrick floor and near the driller's controls, the shelter piping is easily connected into a 1-inch steam line at the floor edge, a convenient valve permitting the driller to control the heat as desired. A flattened piece of tank material secured across the two wings of the shelter provides additional protection against rain or fluids dripping from overhead. Two short pieces of rig angle iron welded across the two wings at convenient height serve as shelves across which the plank seat is extended.

FLOOR HEATER

This improved shelter is an essential piece of equipment, particularly in fields where cold winds sweep in at night. The full-length feature of the heater is particularly advantageous in providing a blanketing heat which is far more efficient than the usual bank of piping.

Easily Adjusted Support Carries Stem Extension

Rather than attach the extension stems for control of steam to the mud pumps to the floor railing, where the stems would be subject to vibration and where the valve location would be restricted to a point directly under the edge of the floor, one company lets the valves come where most convenient with standard nipples and connections, extending the stems upward and drilling holes through the timbers at the proper points.

VALVE CONTROL

To guide the stems and afford necessary rigidity of the mounting for spinning the valves is necessary, each stem is supported in a light pyramidal frame, fabricated from angle iron, and with a band which may be crimped or bent to fit closely around the extension stem.

With the angles which form the base set with flanges on the inside of the angle, holes may be drilled and nails used to attach the device to the timbers without placing a possible hazard to restrict full use of the floor space. Use of scaffolding or form-building nails, with stop collars below the heads, permits withdrawal of the nails when tearing down without subjecting the light angles to the strain of being pried up to remove the fastenings.

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Here's a good, safe way to straighten Kelly, Drill Collar or Drill Pipe as it hangs in the derrick. Easily carried on a pick-up truck, and lifted on rotary table with catline. Ideal for foreign use or on wildcat wells where transporting Kelly or pipe from rig to shop is a problem. Handles pipe up to 8¾".

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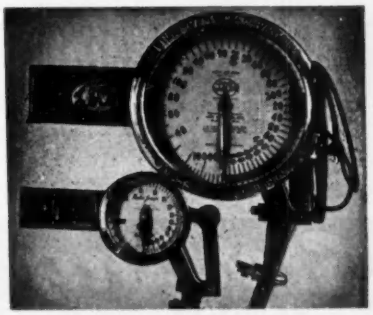
LINE SCALES



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ON PAGE 103 OF THIS ISSUE

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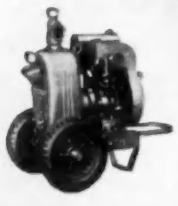

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Sturdy Brace Insures Substructure Unit Alignment

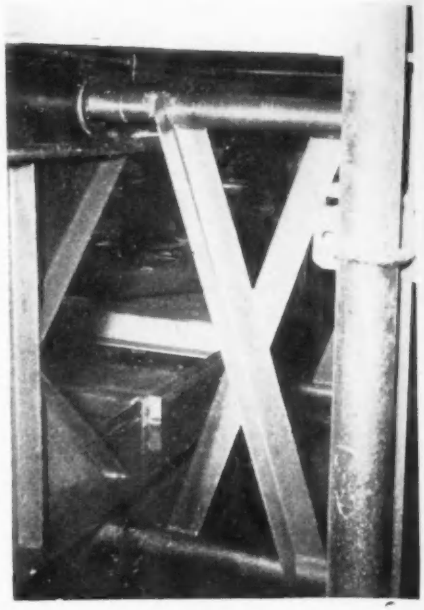
The separate substructures which support the power plant and the mud pumps are tied together on one rig through their full height by means of a prefabricated brace which relieves the bolts which tie down the sills of all save lateral vibrational stresses.

RIGGING-UP IMPROVEMENT

The brace is welded onto two sections of extra heavy pipe, cut to fit between the substructures when properly spaced, the ends of the pipe being reinforced with heavy flanges, welded on, to increase the bearing surface against the webs of top and bottom channels of the units. The two pipe sections are rigidly braced, and held the proper distance apart, by an X-member of 3 x 3-inch steel angles, fitted and welded to the pipe, and with a bead all around the area of contact where the angles cross.

The brace is retained in place by means of 1½-inch bolts run through the pipes and matching holes in the webs of the substructure channels, the nuts being pulled tight and secured with lock nuts after the adjustment is made.

Placing the braces and through bolts tends to unitize the entire substructure, and eliminates the rocking or swaying



sometimes noted on units which are retained in alignment only by the bolts through the upper flanges and the stringer or floor-sill members.

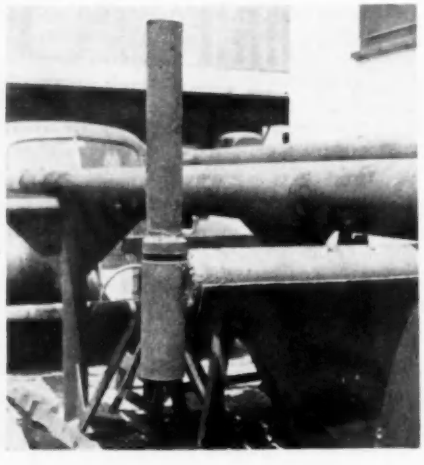
Socketed Stub Holds Racked Drill Pipe Securely

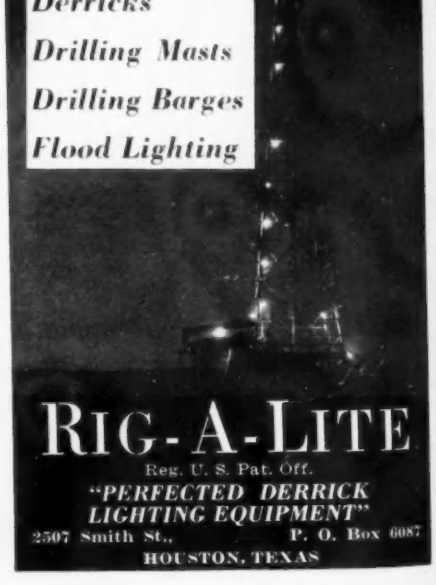
Makeshift methods that are unsafe have no place around the oil lease. One drilling contractor has added to the general safety and has lessened the work of his men by making the simple pipe holding device shown.

PIPE RACKING

This contractor uses steel pipe racks and on the ends of each of the cross members that carry the pipe load, he has had welded short lengths of two-inch pipe in a vertical position. Made up as inserts for the two-inch pipe are 18-inch lengths of 1½-inch pipe. These pipes have half-inch square bands welded around them about six inches up from one end. The smaller pipes serve as stakes similar to those used on trucks.

The stakes are of course removed when rolling pipe on or off the rack and replaced when holding the pipe on the rack. Blocks of wood, short pieces of pipe and other items such as are commonly used with the always present chance of slipping out are therefore eliminated.





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CALIPER WELL LOGGING

Part 3

Shales Associated with Petroleum Reservoirs

Many interesting observations have been made during the last years on the physical state of shales associated with Petroleum. A review of some of these observations is offered in this article.

IN 1934, a tool pusher of the German oil field of Nienhagen reported that, while drilling in shales, the drill pipes suddenly dropped eight feet in a large cavity. Although it was difficult to accept this story exactly as reported, it was evident that the man was sincere and that he had had the impression of feeling a cavity under the bit. An electric log and a directional survey made a few days later in this well did not reveal anything unusual. At the depth of the cavity, the electrical measurements logged shales, and below them a 40-foot oil sand. As, subsequently, the well produced oil at a normal rate, the incident was soon completely forgotten.

Several years later a series of temperature measurements were conducted in a number of wells of a field of Chambers County, Texas Gulf Coast, in which the section consisted of several hundred feet of shales and sandy shales overlying an oil sand. All these temperature logs had a very unexpected feature: they exhibited an abnormally large temperature drop at some distance above the oil sand. One of these logs is reproduced in Figure 1. At the time the measurements were made, it was assumed that the temperature drops observed were due to expansion of the gas dissolved in the oil of the bottom sands. This explanation was quite unsatisfactory, however, because of the extremely large quantity of gas under high pressure which would have been necessary to produce the temperature changes observed. Nevertheless, this explanation was offered because no better theory was available at that time.

Similar results were obtained in various parts of this country and abroad in many of the wells in which temperature measurements were taken. Figure 2, for example, is a chart embodying the electric and temperature logs of a well of the Reitbrook, Germany, field. In this field the oil is found in a chalk section situated below a thick sandy shale zone. In the well under discussion conventional cores were obtained from 2720 feet to bottom. The cores of the section at 2720 to 2728 feet consisted of shales with paper-thin sand streaks out of which gas was bubbling when the samples were taken out of the core barrel. The log shows that this section is situated in a zone where there is a marked temperature drop on the log.

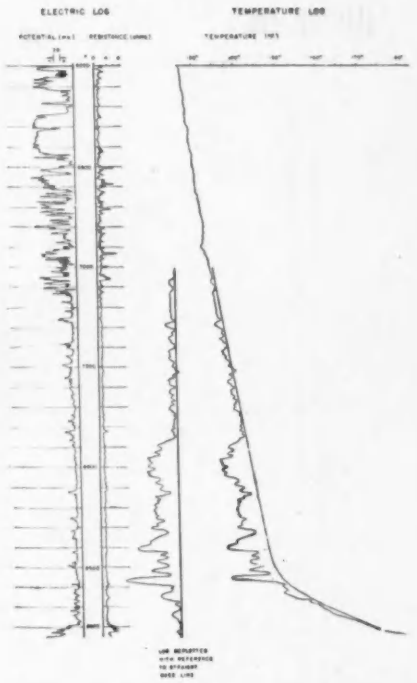


Figure 1. Temperature log of a well of Chambers County, Texas, showing an abnormally low temperature above an oil sand.

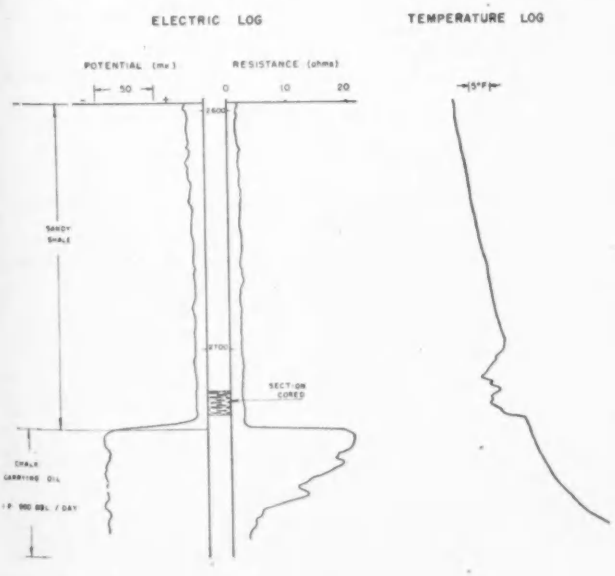


Figure 2. Temperature log and electric log of a well of the Reitbrook field, Germany, showing an abnormally low temperature above an oil reservoir.

Theory Unsatisfactory

The explanation of all these facts was not clear at the time the observations were made. The writer felt, however, that there were some unknown relation between these phenomena and the nearby petroleum reservoirs. A plausible explanation was found a few years later after a number of data given by caliper logs and drilling time records became available. These data can be summarized as follows:

Caliper logs made in Gulf Coast wells show that in many instances the shales overlying oil or gas sands exhibit a greater caving tendency than those which are not associated with petroleum. A cursory examination of a few of the logs obtained in other oil provinces shows that a similar condition may exist there also. Furthermore, from the scant drilling time data available at present on Gulf Coast wells, it seems that sometimes the drilling of certain shales overlying petroleum reservoirs is faster than normal. This is illustrated in Figure 3, which shows the electric and drilling time logs of a well of the University, Louisiana, field. At 6400-6450, 7945-7970 and 8070-8130, in shales situated above producing sands, the drilling rate was noticeably faster than the average drill-

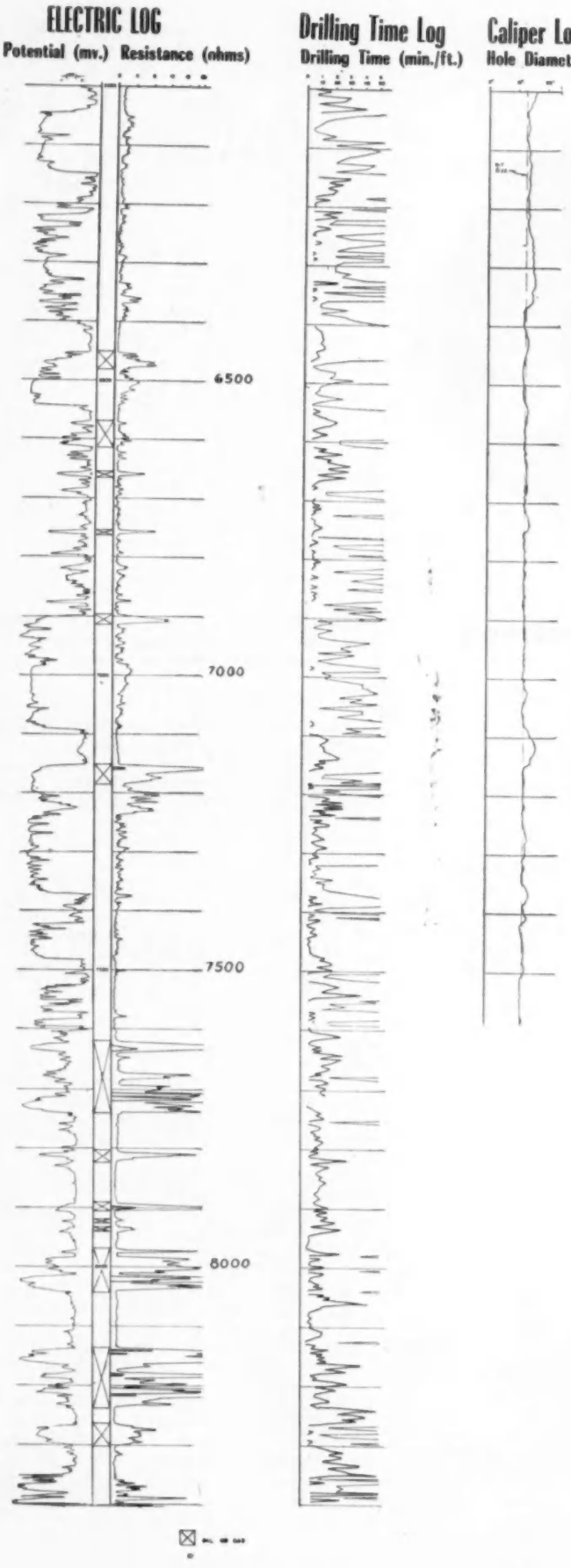


Figure 3 (left). Drilling time log of a well of the University field (East Baton Rouge Parish, Louisiana), showing relatively fast drilling rate in a few shale sections overlying oil or gas sands. (Courtesy Wm. Hellis)

ing rate in shales. On the other hand, there are shale sections located above petroleum reservoirs in which the drilling rate was normal, for instance at 7100-7150.

Presence of Gas in Shales

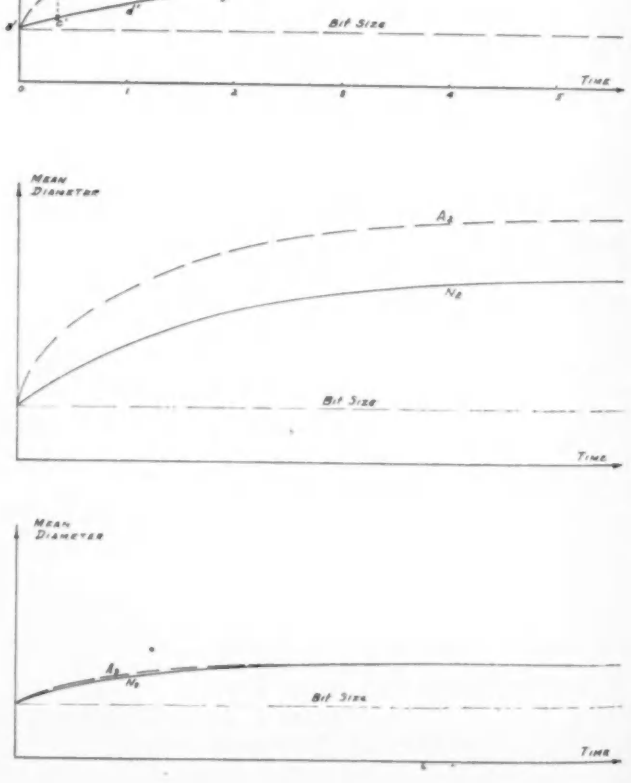
In addition to the observations reported above, several references on the peculiar physical state of shales associated with oil or gas bearing formations can be found in the oil literature. In his "Geology of Petroleum" Emmons[1] made the following statement in his discussions of Coverings of Reservoirs:

"In certain fields the covering shales are somewhat indurated and considerable fractures have formed in them. This is true of cap rocks of Boryslaw, Galicia, and Salt Creek field, Wyoming. In these and other fields ozokerite and other bitumens have formed by hardening of the oils and have sealed the fractures."

While discussing the problem of heaving shales, Wade[2] made the following interesting remark:

"Broken shales and deep-lying shales of the laminar type that contain streaks of porous material have minute cracks that usually are filled with gas under high pressure. When these shales are cut by the bit the gas is released, and high differential pressures between the hole and the formation may be generated if the density and other properties of the drilling fluid reaching the bottom of the hole are unsuited for the conditions, or the mud-fluid circulating system is inadequate or impaired. The force of expanding gas causes the wall of the hole to slough off and creates a condition similar to that caused by hydration. At the depths at which these shales sometimes are found, formation pressures are high enough to cause some of the gas

Figure 4 (below). Degree of caving in terms of time for most common Gulf Coast shales.



to be dissolved in the liquids present and may also cause some components of the gas to be in the liquid phase. Under high pressures some gas undoubtedly invades cracks and interstices within the shale, although shale generally is considered to be a relatively impervious substance. By virtue of the potential energy of gas under high pressure contained within their pores, such shales are prone to heave into the hole when drilled."

Halbouty and Kaldenbach[3] previously had made the following similar observations:

"Shales, carrying gas in pockets or in minute cracks are among the most troublesome encountered in the Gulf Coast. When drilled into, pressures tend to equalize, the gas expands and breaks the shale up in fragments, ranging in size from one-half to chunks of several inches . . .

"This gas-carrying shale and the broken shale . . . are particularly difficult to combat. Both are usually brittle and break down very rapidly, so that there is little time for the mud to build a protective wall around the shale and thus plaster it off. A sample of this gas-carrying shale, when placed in a beaker of water, cleaves along more or less numerous planes, due to expansion of evolving gas, which causes the sample as a whole to increase in volume."

The foregoing quotations can be summarized by saying that shales which contain gas . . . or more generally speaking, hydrocarbons . . . are more brittle than normal. On the other hand, it is known that cores taken in shales situated above oil or gas sands usually contain a noticeable amount of gas. A logical association of the foregoing statements leads to the conclusion that shales overlying petroleum reservoirs must be more brittle than normal. The size of a bore hole drilled through these shales must therefore be, on the average, greater than normal. These enlargements explain the temperature minima displayed above oil sands. (The influence of the size of the hole on the temperature measured in the mud column will be explained in a later article.) This great brittleness will frequently result in fast drilling times and imagined cavities.

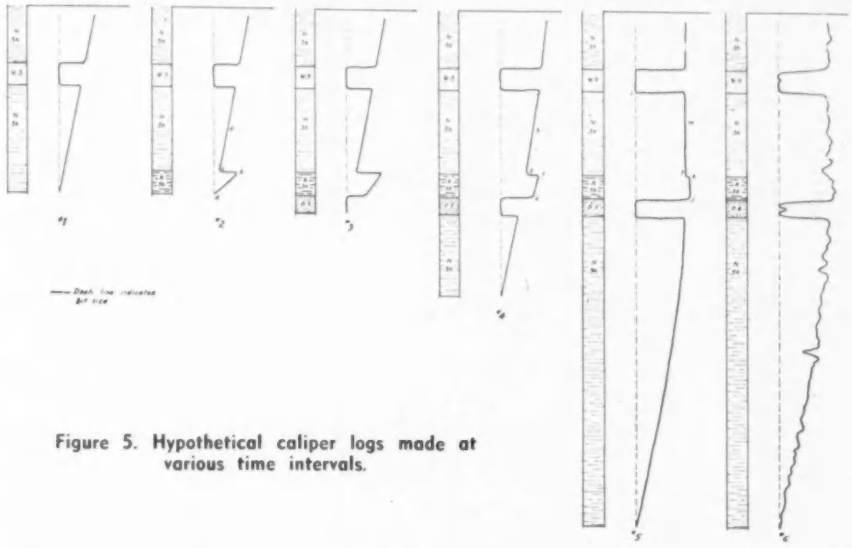


Figure 5. Hypothetical caliper logs made at various time intervals.

Inasmuch as a bore hole caliper records accurately any enlargement which might be present in an open hole, it has been thought that this tool was well adapted to the indirect location of certain oil or gas sands. Broadly, the method consists in making hole size measurements in the well under investigation, picking the points where an abnormally great enlargement in shales is logged, and investigating whether this enlargement is due to the presence of petroleum in the subjacent reservoir. The possibilities and limitations of this method has been investigated recently and the main conclusions reached are summarized in this and in the following articles.

The problem is difficult because of the many factors which control the caving of a shale. Among these factors the most important are probably:

The nature of the shale.

The nature of the drilling mud.

The time the shale is exposed to the mud.

The drilling operations.

These factors are not always independent from each other. For example, it cannot be said simply that a given shale has a certain caving tendency, or that a given mud has a given disintegrating power. It probably is more exact to consider the combined effect of a given mud on a given shale.

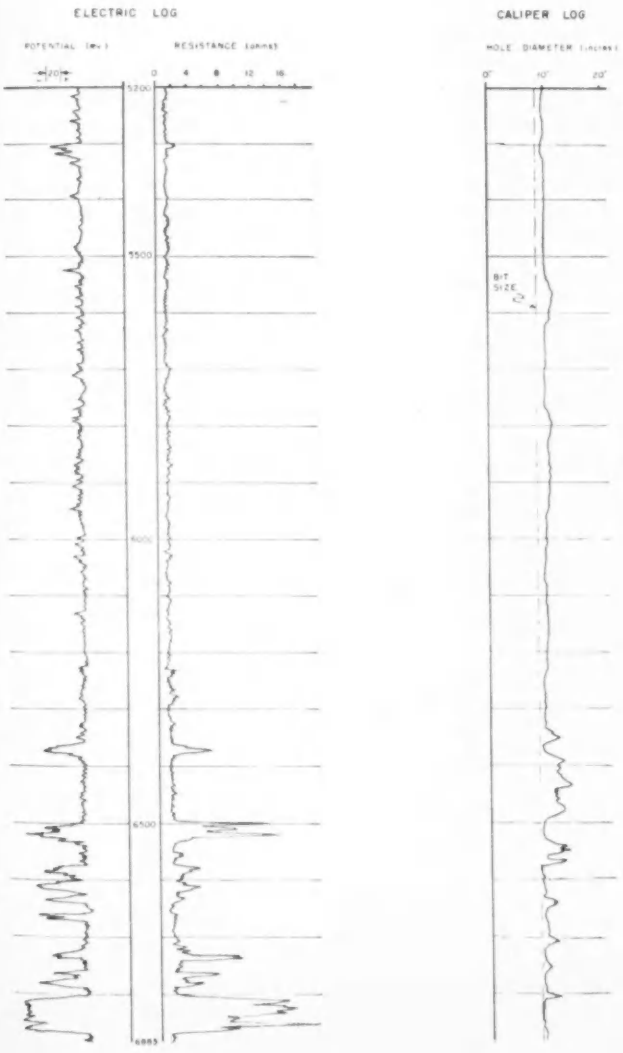
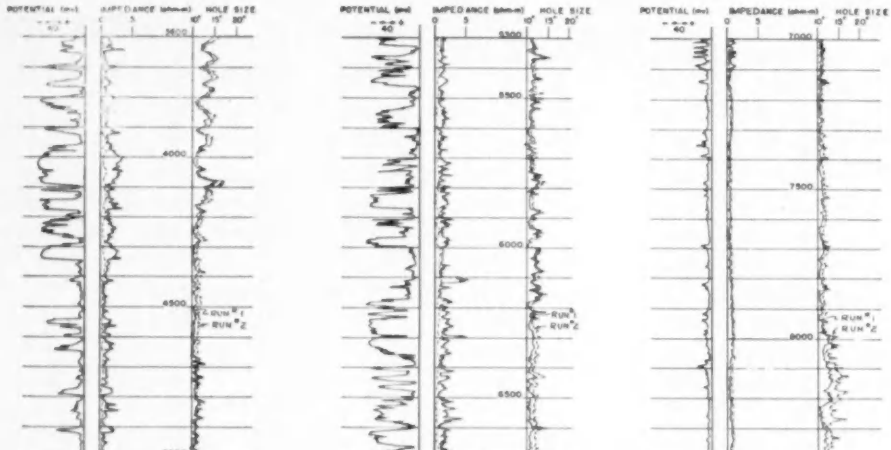


Figure 6. Abnormal caving in shales associated with oil and gas sands, Katy field, Waller County, Texas.

(Courtesy Humble Oil & Refining Company)

Caving in Abnormal Shales

The process of caving in the most common shales can be summarized briefly as follows: When a short shale section is drilled, it disintegrates to a small or large degree under the various influences listed above. The resulting caving increases with time, and after a few days . . . or sometimes a few hours . . . the rate of disintegration usually decreases, and finally becomes nil. In certain cases, the formation of a protective wall lining the shale might even result in a slow decrease of the hole size. (See Part 1 of the series, The Oil Weekly, August 27.) The size of the mean diameter of the bore hole can be



Note: Run No. 2 shifted slightly to right

Figure 7. Caliper logs of a well of the Galveston Bay field (Chambers County, Texas) showing abnormal caving in a thick shale section above an oil sand.

(Courtesy Humble Oil & Refining Company)

represented in terms of time by a graph similar to Curve N_1 (top of Figure 4) for a shale of normal caving tendency drilled with a normal good mud M. If the same shale were located immediately above an oil sand, it is probable that it would be more brittle. The size of the bore hole in this type of shale is represented by Curve A_1 of Figure 4. Although Curves N_1 and A_1 are probably quantitatively incorrect, it is thought that they illustrate qualitatively the phenomenon of caving of the majority of the Gulf Coast shales.

For the sake of simplicity the two types of shale referred to above will be called "normal shale" and "abnormal shale," respectively, and designated by the letters N and A.

Let it be assumed now that the open section of a hole consists of several hundred feet of normal shale N in which there is a water sand WS. If the well is drilled at a substantially constant rate with mud M, a caliper log made immediately after drilling will be as shown by Curve 1 of Figure 5. It is obvious that, if the scales are adequately selected, Curve 1 of Figure 5 is identical with Curve N_1 of Figure 4 throughout the shale section. Of course, the size of the hole in the water sand section will be less, and approximately equal to the size of the bit.

Suppose now that the bottom section of the hole has penetrated about 50 feet of abnormal shale instead of normal shale. In this case, the resulting caliper log will be similar to Curve 2 of Figure 5. Section ab of this curve is the same as section a'b' of Figure 4, while section cd, Figure 5, is the same as section c'd', Figure 4. The change of formation from shale N to shale A is obvious on the caliper log. In the following discussion, a caving such as abc will be termed "abnormal caving," whereas one such as cd will be called "normal caving."

If the hole under investigation is not bottomed in shale A, but perhaps 30 feet deeper in an oil sand OS situated immediately below the abnormal shale, the resulting caliper log—Curve 3—is not too different from Curve 2 provided the drilling speed remained about the same. The log still exhibits a sharp break at the contact NA.

Now, if the hole is drilled several hundred feet deeper below OS through another normal shale section, the caliper log will be Curve 4 of Figure 5, where arcs ef and gh correspond respectively to arcs e'f' and g'h' of Figure 4. In this case, the formation change from shale N to shale A is not as outstanding as on Curve 3, but it still can be detected readily in most cases.

Finally, if the well is drilled much deeper, so that a week or more has elapsed between the time shale A was drilled and the caliper log is made, the lob is like Curve 5 and does not show any substantial diameter change between formations N and A.

If the beds drilled were homogeneous, the actual caliper log would be almost identical to ideal Curve 5 and shale A might be picked from this record. Unfortunately, homogeneous thick shale sections, as assumed above, rarely exist, especially in the Gulf Coast. Usually the nature of sales changes continually with depths, becoming more or less sandy. Furthermore, there may be numerous thin sand layers interbedded in the section. A caliper log made under such conditions will not be a smooth curve, but a very irregular one, as illustrated by Graph 6, Figure 5. On this type of record, the formation change NA usually cannot be picked.

The conditions which have been described above and illustrated on Figure 5 are very frequent in the Gulf Coast. A rapid survey has shown that they are found in approximately 60 percent of the shales overlying oil or gas sands. Two actual examples are given on Figures 6 and 7. Figure 6 is a composite log obtained in a well of the Katy field (Texas Gulf Coast). In this well, all sands below 6350 feet are oil or gas sands. It can be seen that the shales overlying each sand exhibit hole enlargements which are sereval times greater than those found in normal shales.

Instead of being localized at the very bottom of the shale section overlying the petroleum reservoirs, as in the Katy well , the abnormal caving is sometimes spread over several hundred feet of shales. An example of this condition is shown in Figure 7 in which the electric log and two caliper logs of a well of Galveston Bay, Texas are given. In this well, the second caliper log was made . . . after reaming . . . about one day after the first run was made. Comparison of the two records illustrates well several of the remarks made in the preceding sections.

Abnormal caving seems to be a consistent condition through a given field. When present in one well, it usually is found in all wells of the field, although its magnitude and the vertical extension and position may vary from well to well, as shown for example by Figure 8.

Whether dry holes located close to the limits of the pool exhibit some caving also is not well known because the number of caliper logs made in dry holes close to a pool where sufficient caliper data is available in producing wells is much too small at this time to warrant conclusions. An example will be presented, however, in Figure 9. In this chart the logs of two wells of the Weil field (South Texas) are reproduced. In well B there is some abnormal caving on a 200-foot section immediately above

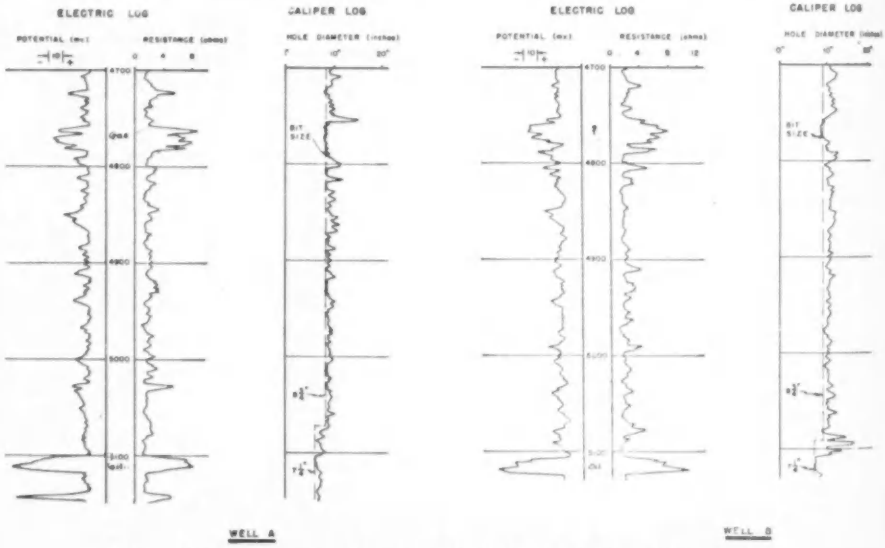


Figure 8. Logs of two wells of the North Sun field, Starr County, Texas.

(Courtesy Sun Oil Company)

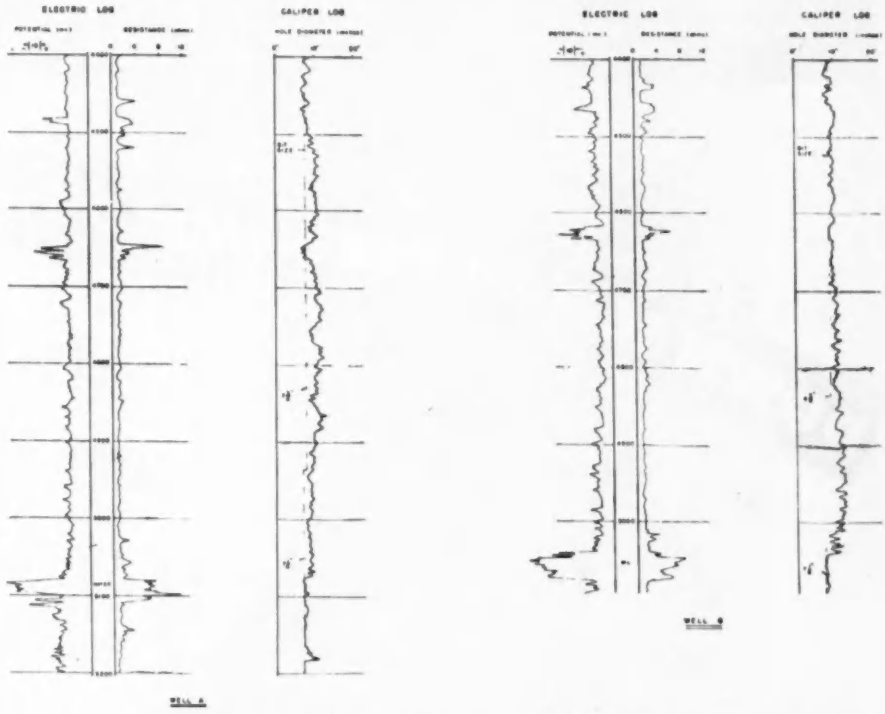


Figure 9. Logs of two wells of the Weil field, Jim Hogg County, Texas.

(Courtesy Sun Oil Company)

the oil sand located at 5030-5080. In well A, there is no abnormal caving in the corresponding sections, probably because the sand at 5080-5100 carries water. The caliper log shows, however, that there might be some abnormal caving about 200 feet higher up in the hole.

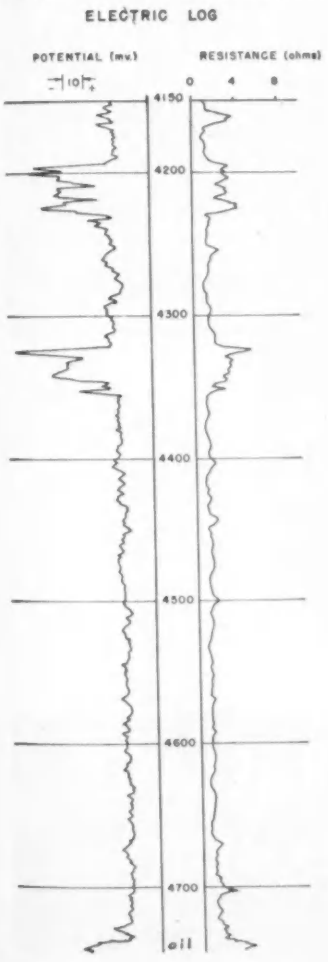
The foregoing discussion of caving in abnormal shales has been somewhat simplified for the sake of clarity. In practice, it is evidently more complex. In particular the caving tendency of an abnormal shale section cannot usually be represented by a single diagram, because of the vertical changes existing in the abnormal caving tendency. As a rule, the caving tendency is maximum near the bottom of the section and decreases upward, sometimes in a rather irregular manner. The Galveston Bay log, Figure 7, is a typical example of this case.

Another remark which should be made is that the rate of caving may vary widely from one area to another. In the Gulf Coast, the time unit for the top diagram of Figure 4 is of about one day for the majority of the shales. There are cases, however, where the time unit is either appreciably greater or smaller.

The caving condition just described, although very frequent in the Gulf Coast, suffers numerous exceptions. The other two most common types are represented respectively by diagrams A_2N_2 and A_3N_3 in Figure 4.

In the A_2N_2 type, there is always a much greater caving in the abnormal shales than in the normal shales with which they are associated, regardless of time, apparently. This case is probably rare . . . 10 percent . . . because it has been found in only a small number of wells as yet. In one of these wells the abnormal shale was about 400 feet thick and was situated between a water sand at the top and a gas sand at the bottom. The electric log showed there was no other sand in the shale section itself, except possibly extremely thin sand beds. The caliper log was made about two weeks after the gas sand was drilled. The mean diameter averaged 18 inches in the abnormal shale, while it averaged only 13 inches in the shales situated above or below.

In the third type of shale diagrammed by Curves A_3N_3 of Figure 4, the caving tendency of the shales associated with petroleum reservoirs is about the same as that of the shales which are not. In other words, there are no real abnormal shales in the vicinity of the reservoir. Such a condition has been found in about 20 percent of the wells of the Gulf Coast in which the caliper data are available. A typical example is shown on Figure 10, which shows electric and caliper logs of a well of the East field (South Texas).



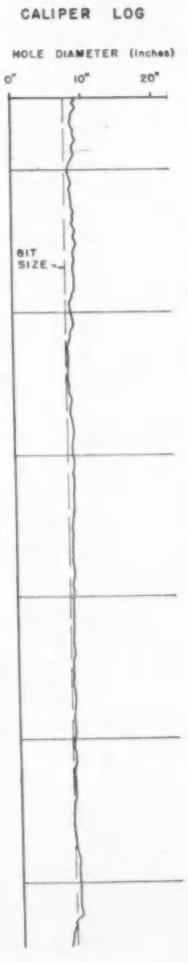


Figure 10. Logs of a well of the East field (Jim Hogg County, Texas), showing very small caving in shale overlying an oil sand.

(Courtesy Sun Oil Company)

It will be appreciated that the shale classification outlined above has been given only to illustrate the most common types of formations found in the Gulf Coast. In practice there are probably many more combinations of normal and abnormal shales, as for example associations such as A_1N_3 or A_2N_3.

Applicability of the Method

To ascertain whether caliper logs can be used for helping locate petroleum reservoirs, it is necessary to understand first why so many of the shales associated with these reservoirs have an abnormal caving tendency. It has been thought at first that the presence of hydrocarbons in the shale was directly responsible for the caving. A recent survey has shown that this is probably not true. It seems more plausible to assume that the presence of hydrocarbons and an abnormal caving are two phenomena which are independent of each other, but that they are caused by the same factor, namely, the presence of the oil or gas deposit. A short discussion of the question will be presented in the next and last article of the series.

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[3] M. T. Halbouty and N. A. Kaldenbach, "Characteristics, Methods of Combatting and Economic Importance of Heaving Shale," THE OIL WEEKLY, October 24, 1938.

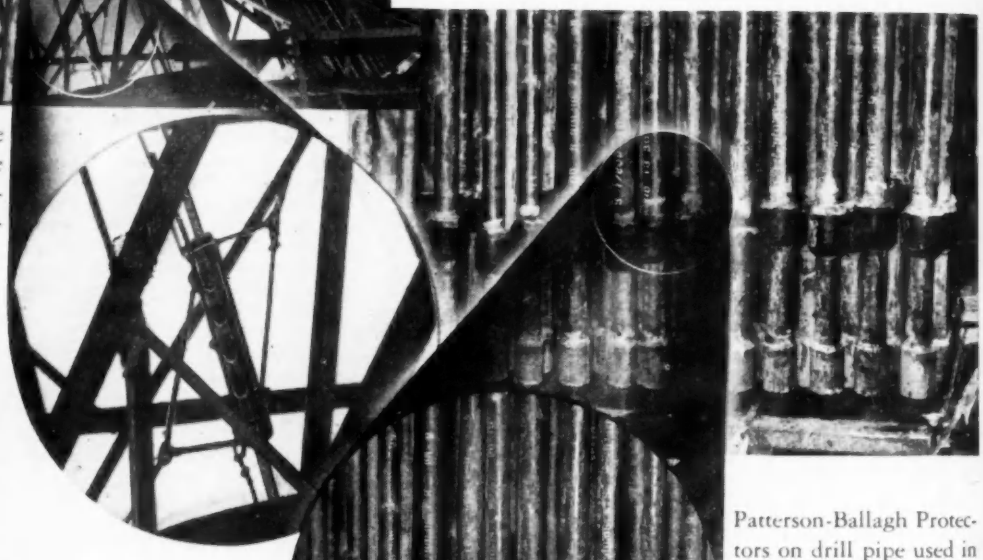
☆

Attention is called to a transposition of Figures 6 and 7 in Part II of the Guyod series on Caliper Well Logging. Figure 6 is at the left and Figure 7 at the right of page 59 in last week's issue.

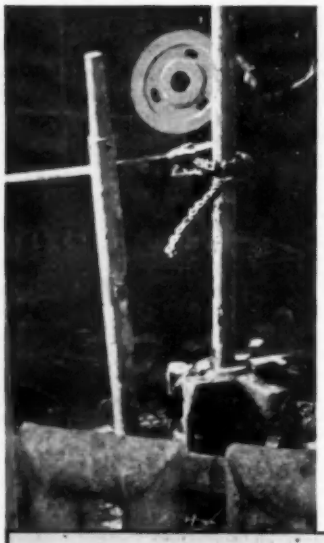
CASING PROTECTORS • STABILIZERS • PIPE WIPERS • WIRE LINE GUIDES • WIRE LINE WIPERS • KELLY WIPERS
KELLY SUB PROTECTORS • MUD GUNS • MUD GUN NOZZLES • SWIVEL BAIL BUMPERS • DEAD LINE STABILIZERS
TRAVELING BLOCK BUMPERS • TUBING PROTECTORS • SUCKER ROD WIPERS • TUBING WIPERS

DOWN 16,724 FEET—WORLD'S DEEPEST WELL *with* PATTERSON-BALLAGH EQUIPMENT *all the way!*

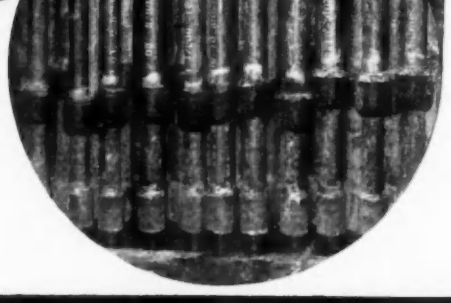
Phillips Petroleum Company, drilling the world's deepest, in Texas, used Patterson-Ballagh Protectors, Wire Line Guides and Drill Pipe Wipers. Their use very materially assisted in reducing the wear on equipment. This is good evidence to the alert driller of the value in Patterson-Ballagh Oil Field Specialties.



Patterson-Ballagh Wire Line Guides were in use throughout the operation to insure reliable spooling of the wire lines—saving fatigue, strand wear and kinks.



Clean as a whistle! The Patterson-Ballagh Pipe Wiper has wiped this drill pipe free of mud as it was pulled from the hole. Note stencil marks —clean floor.



Patterson-Ballagh Protectors on drill pipe used in this well show clearly the remarkable job they do in protecting tool joints from abrasion.

"Best Bet Yet"

PATTERSON-BALLAGH

LOS ANGELES 1 • HOUSTON 10 • NEW YORK 6

PATTERSON-BALLAGH

OIL FIELD SPECIALTIES

Now Made of PBX Synthetic Rubber . . . *Oil and Weather Resistant*

The Outlook

Tax relief legislation before the end of the year is assured as Congress buckles down for its job of perfecting the reconversion program. A suggested 20 percent cut across the board is deemed unlikely. The more intricate job of rewriting the revenue laws apparently will be undertaken.

* * * *

PAW is so far out of business that it no longer will be a factor to be reckoned with in oil operations. Exodus of officials back to their peacetime industry jobs is about to begin.

* * * *

Jockeying of the big powers for position in their "security zones"—modern jargon for spheres of influence—will tend to slow down the world's return to normalcy. Oil will be a major factor, particularly in the Middle East.

* * * *

Congressional investigations of oil and allied matters will resume as soon as the first flurry of legislative activity subsides, with disposition of war-built facilities the first subject to be brought up. The big pipe lines will be kept in operation until decision is reached as to their disposition, to that they can be offered as "going concerns."

* * * *

Most pressing immediate problem is that of unemployment. Wages also will be an issue as labor seeks to retain the advances it made during the war. The dumping of millions of veterans on the labor market will not tend to ease the situation.

* * * *

Atomic power may find one of its first applications as a new source of energy to drive gas turbines, in the opinion of members of the American Society of Mechanical Engineers. Many, however, view the field as too highly speculative or believe security regulations too strict to warrant exploration at the present time. ASME does not view atomic energy as a replacement, but rather as a supplement to present fuels.

* * * *

Exporters on the whole are anxious for Uncle Sam to abolish all controls of American goods on foreign markets, so FEA's plan to end its buying and selling activities within 60 days was welcomed news.

* * * *

Jet propulsion in airplanes apparently will be circumscribed until provision is made for replacing parts which collapse due to critical temperatures generated.

* * * *

A special session of the Texas Legislature to consider higher old age pensions, approved in the August constitutional amendment vote, might necessitate additional revenues, what with the expected decline for several months in oil tax revenues.

* * * *

Commercial production of gasoline from coal at a cost little more than that of the standard petroleum product of today may be practicable within a few years as a result of adaptation to American plants of advances made by the Germans during the war.

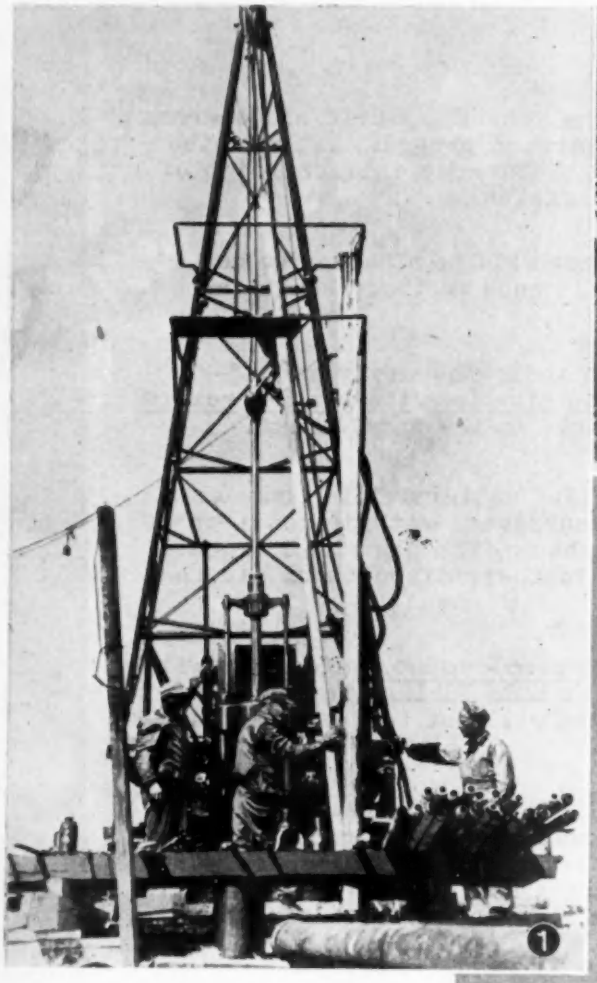
* * * *

The oil industry headed back to a 40-hour week—some back to perhaps 36 hours. Labor is willing, but some of the unions are preparing to ask that the men be paid at the gross daily wage that the men would have obtained if they had worked 52 hours.

* * * *

Lease expirations and drilling obligations will maintain development at a high level in the Mid-Continent area for some time to come and with the slackening in demand, operators may continue wildcatting, pinching in discovery wells.

THE NEWS IN PICTURES



1. German prisoners of war make good roughnecks when supervised by their American captors, and hundreds were used to drill shallow water wells in Germany. The rig pictured here was operated at Camp Oklahoma City of the Sisonne Sub-Area Assembly Command in France. At left is T/5 Oscar Anchor of Detroit; right is T/3 Albert E. Oberhoff of Rosenberg, Texas, formerly employed by a geophysical firm in the United States, and center is a German prisoner of war who is being used as a helper.

2. Sarah Elizabeth Rodger of New York makes history as she starts a tour of the city in the first civilian jeep on the streets of New York. A writer, she has always wanted "to do a new thing first," and this time she did, by jeepers! —Acme Photo

3. Five men were killed and another critically burned in this flash explosion in an oil well near Long Beach, California. The well was being repaired to get it back into production. —Acme Photo

4. The India-China division of the Air Transport Command celebrated Air Force Day August 1 by sending over the hump of the Himalaya Mountains between China and India the greatest amount of cargo ever carried in a day in regularly scheduled air operations. Here a coolie team hoists an oil drum aboard a C-46 Commando. —Acme Photo

The Week's News

MOST important of last week's Washington developments, in its implications, was President Truman's message to Congress in which he called for diligent effort to restore our natural resources to their prewar levels. Pointing to the great depletion of oil and other resources, the President indicated that in this effort, as during the war, the government and industry can work together.

Big Job for Congress—The President's message marked the opening of the first postwar session of Congress, which has before it a schedule as heavy as any which faced it during the war years. Taxes, unemployment compensation, research, public works and other legislation recommended by Truman, together with the other bills which will be considered and the many investigations which are planned, several of them affecting the oil industry, will make it necessary for Congress to hit and maintain a fast pace through the remainder of the year. Page 74.

Higher Steel Prices—Higher prices for oil country steel were seen as a possible outcome of a study of steel ceilings undertaken by OPA on complaint of the steel industry that with the loss of its volume-assuring work orders it is operating at the break-even point or worse on many products. Page 77.

Deferment of Keymen—Selective Service has issued regulations under which employers in the industry may seek continued deferment for those workers under 26 who were exempt from military service during the war, with indications that no great difficulty will be encountered in retaining them. Page 75.

Bureau Overlapping—Desirability of reorganization of the federal establishment was emphasized by a showing that a dozen agencies divide responsibility for administration of public lands and that government activities in other fields are equally split up among numerous departments and bureaus. Page 76.

U. S. Equipment for Russia—Russian plans for a 500-mile "big inch" natural gas pipe line were disclosed, with part of the equipment, at least, to be provided by United States fabricators. Page 75.

Reimbursement Plan Ends—Another government reimbursement program has been slated for termination, the aviation gasoline program which will fold up September 30. Page 79.

Shipbuilding Low—Shipbuilding in August fell to the lowest point in three years, with only 84 vessels, delivered, bust most of the decline was in dry cargo carriers, tanker completions numbering 15, which is not too far below immediately preceding levels. Page 77.

API Silver Jubilee—The war-delayed silver jubilee meeting of the American Petroleum Institute has been tentatively scheduled for November 12-15 in Chicago. Page 75.

Ethiopian Oil Concession—Sinclair Oil Corporation has been granted an exclusive oil concession covering the empire of Ethiopia. Page 75.

Mexican Oil Report—Of 49 wells completed, 31 were producers President Camacho revealed in his fifth annual report to the Mexican people. Page 76.

Panama Pipe Line—A double-barreled pipe line was constructed across the Isthmus of Panama to fortify the Pacific fleet against loss of oil supply should the Panama Canal suffer damage. Page 76.

F.H.E. Resolution—The Fifth Circuit Court of Appeals has pointed out that Resolution 50, adopted by Congress, does not alter the statutes as they existed when the taxes in (the F.H.E. Company case) controversy accrued. Page 77.

FPC Hearing—The initial hearing of the FPC on natural gas problems, scheduled to start in Kansas City next week, may last three weeks. Story below.

Surplus Disposal—Policies to guide the government in disposing of surplus war plants were announced September 9. Page 74.

Many Witnesses to Be Heard by FPC At Kansas City Hearing on Natural Gas

A long list of witnesses will confront the Federal Power Commission at the opening of its natural gas investigation at Kansas City September 18.

The commission has scheduled three weeks for the initial hearing and officials last week expressed the opinion that the full period will be required.

While the Kansas City sessions will cover the whole gamut of topics long since outlined by the committee, they are expected to develop only one of two of the major issues which are to be considered. Requests for time by representatives of the coal industry indicate that the first big issue will be that of gas vs. coal in the industrial communities in the coal-producing areas.

Commission officials said that this issue is one of grave social and economic importance and that an extensive study will be made of the coal and railroad industries' contention that it is not wise national policy to permit the use of a high-value fuel in areas where a low-value fuel is available. The controversy over the use of gas in the coal areas, it was pointed out, raises such side issues as the future of the coal industry and the employment of miners, the rapid depletion of natural gas reserves and relative factors.

A second big issue is expected to come up when the hearings move south and the big gas-producing states present their demand for federal action to prohibit or limit the export of gas, over which the states have no power by reason of the fact that the movement is interstate and solely within the jurisdiction of the federal government.

Among witnesses who have asked for time to present testimony are Senator Clyde M. Reed of Kansas, Mayor Gage of Kansas City, Governor Schoeppel on behalf of the Interstate Oil Compact Commission, The Kansas Corporation Commission, which will cover practically the entire list of topics under investigation and has retained the Midwest Research Institute to assist in its presentation, The Missouri Corporation Commission for brief evidence, St. Louis authorities who are expected to bring up their long standing desire to get natural gas and E. DeGolyer on natural gas reserves.

Interstate Oil Compact To Defend State's Rights

The Interstate Oil Compact Commission has gone on record that regulation of the natural gas industry is an exclusive function of the soverign states. The commission's position in the pending investigations of the gas industry by the Federal Power Commission was stated at its recent meeting in Oklahoma City.

Referring to a "state's rights" resolution adopted by the commission last June, Governor Andrew F. Schoeppel, chairman, stated, "That is our policy, and that is what we shall stress before before the FPC. Spokesmen for the power commission have said it does not want to encroach upon the rights or powers of the State. The Compact Commission's resolution speaks for itself. It

was adopted after long study and discussion."

The resolution urges an "aggressive policy looking toward the enactment and enforcement of legislation to bring about a proper development of natural gas resources and a rigid enforcement of sound conservation practices, which policy is the best insurance against intervention on the part of the federal government."

Governor Schoeppel indicated that the commission's representative at the hearings will avoid discussion of prices and costs of natural gas, and also the end use, since these subjects are not within the scope of commission activities. Instead legislation already enacted by the several states concerning the development of fields and enforcement of conservation will be defended.

No Operator Preference in Sale of Surplus Plants

Policies to guide the government disposal agencies in the disposition of surplus war plants were announced by the Surplus Property Board September 9 in Regulation 10, calling for speedy integration of surplus plants into the peacetime economy of the nation.

Under the regulation, however, no preference is to be provided for contractors in possession of plants they have been operating for the government during the war.

Speed in disposing of these facilities is aimed for by the board, which said that emphasis shall be placed upon the urgency of getting plants into civilian production speedily so as to provide maximum employment, and the new regulation provides that disposal agencies shall seriously consider offers to purchase or lease which will result in lower monetary return if that objective will be better obtained thereby.

The pricing policy under which the plants are to be disposed of is to be flexible the board said, and the selling price may be arrived at by negotiation or by sealed bid.

Partly owned plants are to be considered from the possibility of division of the government's part into units capable of separate operation.

No plant costing more than $500,000 in the synthetic rubber or aviation gasoline industry can be sold or leased without approval of the board, and sales of plants costing more than $1 million must be submitted to the Department of Justice for clearance.

The board pointed out that the plants to be disposed of under the regulation represent 20 to 25 percent of the country's industrial facilities or one-third more than the country's productive capacity before the war.

Since plants owned by the government in some instances represent a large proportion of an industry's facilities—in the case of synthetic rubber, 98 percent—the board is making studies of such industries to determine the effect of the disposal of plants on the national economy.

President Urges Discovery of New Oil Deposits to Keep Nation Strong

President Truman last week called upon Congress and industry to make a "diligent effort to discover new deposits" of oil and minerals "upon which our national life is founded."

In a 10,000-word message on the reconversion plans of the government, the President pointed out that during the war years we expended our resources, both human and natural, without stint, and the resultant depletion of our natural resources is "startling."

"We have thrown into the battle for freedom everything we had," he said.

"We have torn from the earth copper, petroleum, iron ore, tungsten and every other mineral required to fight a war, without regard to our future supplies. We have taken what we needed. We were not able to, and we did not, take account of tomorrow.

"In brief," he declared, "although during this war this nation has reached the apex of its power, a peak of greatness and might which the world had never seen, our national capital account has greatly suffered. We must proceed with all possible diligence not merely to restore these depleted resources to their prewar standards, but to make them greater and richer than ever before.

"We must make a diligent effort to discover new deposits of the precious and indispensable minerals upon which our national life is founded."

President Truman also called on Congress to provide tax reductions for the calendar year 1946, but warned that only limited relief can be extended in view of an estimated $30 billion deficit for the current fiscal year.

However, he said, the tax-relief bill should be followed by modernization of the tax structure with the objective of "encouragement of business incentives and expansion of consumer purchasing power."

Other targets designated by the President were speedy demobilization of the armed forces, quick cancellation and settlement of war contracts, continued price and wage control until danger of inflation passes, and the removal of all possible wartime controls.

"The main objective is to re-establish an expanded peacetime industry, trade and agriculture, and to do it as quickly as possible," he declared.

Looking to the future, President Truman emphasized that the scientific achievements of the war period must not be lost, and recommended establishment of a single federal research agency which would promote and support fundamental research and development projects in all matters pertaining to the defense and security of the nation, and coordinate and control the diverse scientific activities now scattered through the federal departments and agencies, making fully, freely and publicly available to commerce and industry the fruits of research financed by federal funds.

The President's message keynoted the policy of the first postwar session of Congress. Many of his recommendations had been anticipated and legislation prepared to carry them into effect. The first of these measures, substituting one-man administration for the three-man board now in control of disposition of surplus property, will come up in the House for consideration this week.

With the program outlined by the President and the many "sideline" activities which have been scheduled, such as the investigations of oil and transportation, Congress is expected to maintain a fast pace through the remainder of the year.

Present plans call for hearings on tax revision within a relatively short time, immediately following disposition by the House Ways and Means Committee of the legislation now before it, proposing expanded social security benefits for the unemployed. The Senate Petroleum Investigating committee will probably resume its hearings next month, to be followed within a few weeks by House Interstate Commerce Committee hearings on transportation, including pipe lines.

Navy to Settle Terminated Contracts by End of Year

Most of the terminated contracts of the Navy Department are to be settled by the end of the year, it was announced by the department last week.

H. Struve Hensel, assistant secretary of the Navy, said the department wants to clear up the bulk of contract negotiations promptly, not only to facilitate plant clearance and reconversion to civilian production, but also to speed the return to civilian life of naval reserve contract termination personnel.

"If contractors will file their claims by October 15," He said, "The Navy will undertake to have them reviewed by inspectors of materials and forwarded to the contracting officers by November 15. The goal of contracting officers for final settlement is set as 30 days after they receive the claims."

Ship Disposal Agency

The Maritime Commission last week sent up a division of vessel disposal and government aids to take charge of the disposal of all government-owned ships of 2000 gross tons and over, pending enactment of a ship sales bill by Congress.

The new division was created by a merger of the commission's examining division and the ship sales activities of the division of large vessel disposal. Heretofore, the former has been in charge of the sale of vessels to be subsidized to operators and the latter handled the sale of all other ships.

Government Agencies to Stop Draft Certifications; Key Men Provided For

Selective Service last week paved the way for continued deferment of Class II-B (registrants necessary to and regularly engaged in an activity in war production) giving assurance to the oil industry that the few keymen it was able to retain until the end of the war will not now be taken away from it.

Class II-B registrants have been transferred to Class II-A (registrants necessary to and regularly engaged in an activity in support of the national health, safety and interest) and will be held there until the expiration of the period of deferment or change in status.

Selective Service defined "national health, safety and interest" as follows:

"(1) production and services required to maintain the armed forces of the United States during the period of the occupation of enemy territory; (2) research, development and manufacturing of weapons or other items necessary to the maintenance of adequate national defense; (3) transportation and other activities required for the demobilization of our armed forces; (4) activities and services required for an expeditious reconversion from a wartime to a peacetime economy; and (5) other activities which the local board considers essential on a national or local basis."

Under the new procedure, Form 42A (Special-Revised) will continue to be used for the making or requests for the occupational deferment of registrants from 18 through 25, except those found to be disqualified for any military service or found to be qualified for limited service only.

Form 42 or Form 42A may be used for requesting occupational deferment of registrants from 18 through 25 who are found to be disqualified for any military service or found to be qualified for limited military service only. These forms are to be filed with local boards which were instructed to give special consideration to registrants for whom a Form 42A (special-revised) is filed when they are shown to be key personnel in reconversion activities.

After September 15 government agencies will discontinue certifications for draft deferment, it was announced. After that date employers must file requests for occupational deferment directly with local boards.

Detailed instructions are being mailed direct to the oil industry from Washington, District 3 offices, PAW said.

Petroleum Purchases on Competitive Bids Resumed

Part return to the old peacetime system of purchasing petroleum and other needs on competitive bids was announced last week by the War Department.

Department officials explained that with the tremendous drop in Army procurement, the relaxation of delivery schedules and the consequent increase in competition for the business it will no longer be necessary to follow the wartime practice of letting contracts on a strictly negotiated basis.

Where there is competition for War Department procurement, the chief of the technical service involved will advertise and solicit quotations. All bids, however, will be subject to a provision that while the award of contract will normally be made to the lowest qualified bidder, the department reserves the right to award the contract as the result of negotiation and to reject any or all bids.

This provision, it was said, will not normally be applied where the bids received indicate the presence of competition, but if no real competition is reflected in the bids, if an insufficient number of contracts submit proposals, or if prices bid are excessive as compared with earlier prices, the contract will be awarded by negotiation.

Wyoming Map Is Reissued; Michigan Study Is Ready

Heavy demand for the map of Wyoming, showing test wells for oil and gas, which was issued by the United States Geological Survey last December, has made it necessary to reprint the work, and a new edition, revised to April 1, last, is now available, it was announced by the Interior Department last week.

The new map shows three oil fields and six anticlinal axes which were not included in the original issue. Copies of the map, issued as Preliminary Map 19 (revised) of the oil and gas investigations series, may be obtained at 50 cents a copy from the survey in Washington, Casper, Wyoming; Denver Colorado, or Tulsa.

The Geological Survey also has published a map of the Salina formation in the Michigan basin, based on a recently completed investigation which suggests that anticlines on the flanks of the basin may yield commercial oil and gas from the lower part of the Salina formation and the underlying Niagaran rocks.

The lower part of the Salina, it was explained, contains two zones that produce natural gas in southwestern Ontario, while some wells in Michigan have encountered large amounts of gas and some oil from beds probably equivalent to those producing in Ontario.

Copies of the map, entitled "The Salina and Bass Island Rocks in the Michigan Basin," Preliminary Map 40 of the oil and gas investigations series, may be purchased at 35 cents each from the Geological Survey in Washington or the Geological Survey Division of the Michigan State Department of Conservation at Lansing.

Russia Buying American Equipment for Pipe Line

An order has been placed by the Russian government for the delivery of 24 ten-cylinder type American-made compressors to be used in the construction of a 500-mile natural gas line from Saratov, in the Ural Mountains, to Moscow. Each compressor will be a 1000-horsepower unit.

The pipe line, which will have as its primary purpose of transportation of natural gas to furnish domestic and industrial fuel to the Soviet capital, will have a capacity of 80 million cubic feet a day.

The order is said to be one of the first to be placed directly by the Russian Purchasing Commission in its program of war rehabilitation, previous orders for heavy-duty equipment having been filled under lend-lease agreement through the United States Treasury Department.

Ethiopian Oil Concession

An exclusive oil concession covering the 350,000-square-mile empire of Ethiopia has been granted to Sinclair Oil Corporation by Emperor Haile Selassie, H. F. Sinclair, president of the company, has announced.

As payment for the right to explore for and ship oil out of the country, Sinclair will pay royalties to the emperor in addition to building one or more schools and hospitals, clinics and research foundations. It also will pay for educating a number of Ethiopians in the United States for the next 10 years.

The concession just signed by Sinclair comes almost on the eve of a meeting of foreign ministers in London, at which the question of Italy's one-time foreign empire, which included Ethiopia, may be discussed.

API MEETING SLATED FOR NOVEMBER 12-15

The American Petroleum Institute has tentatively scheduled its war-delayed silver jubilee meeting, which also becomes the victory celebration meeting, for November 12-15, 1945, at the Stevens Hotel, Chicago, if the Office of Defense Transportation's travel restrictions are lifted by that time.

The announcement September 6 by the institute emphasized that this twenty-fifth anniversary meeting would be largely devoted to studies of new employment, new markets and the new technologies of the petroleum and natural gas industries.

Pipe Lines Across Panama to Assure Oil for Pacific War Now Revealed

Another "now it can be told" story was released by the Navy Department September 6, disclosing how a $20,000,000 pipe line was built across the Isthmus of Panama to serve as a secret supply artery from the Atlantic to the Pacific should the Panama Canal have fallen victim to enemy action. The project was planned to prevent immobilization of the Pacific fleet in the event of destruction of or serious damage to the canal, but the pipe line proved so efficient and so strategically valuable that construction of a duplicate line was immediately undertaken. The entire project is now more than 95 percent complete and is expected to be finished and made a part of the permanent canal facilities.

The double-barreled pipe line has a capacity of 265,000 barrels of fuel oil, 60,000 barrels of gasoline and 47,000 barrels of diesel oil daily, the department said and can easily provide the Pacific fleet with fuel should the canal suddenly be cut.

Much of its construction is so well covered with jungle foliage that spying cameras from the skies would be unable to trace its route.

The original conception of the pipe line took form in August 1942, as the joint project of the Chief of Naval Operations, the War Department and PAW. The decision for its construction was reached at a secret meeting of some 20 Army and Navy officers at which Robert Leas, petroleum consultant, was one of the Navy representatives.

The original plan called for a line with a daily capacity of 105,000 barrels of fuel oil and another with a capacity of 35,000 barrels of diesel oil or gasoline, but while the project was still under construction but sufficiently completed to have been already in use, the Chief of Naval Operations, represented by Rear Admiral A. F. Carter, petroleum expert, decided to expand the original plan. In accordance with the growing logistical tables compiled on needs in the Pacific, it was decided to double the fuel oil capacity and lay still another line for the gasoline only.

The project, as finally decided upon, provided for two 20-inch fuel oil lines, one 12-inch gasoline line and one 10-inch diesel oil line. The original pipe line was completed in October, 1943, although it was in use months before its official completion date and went far to relieve traffic congestion in the canal and release the larger and faster tankers for overseas use by putting slower and smaller ones in shuttle service between refinery sources in the Caribbean and Cristobal, the Atlantic terminus of the line. On the Pacific side of the mouth of the pipe line is at Balboa. On either end it runs for about five miles from the shore to tank farms and extends for 35 miles between tank farms, making a total length of some 46 miles.

The $20 million cost includes the lines themselves, terminal facilities piers, ballast water plants and pumping stations. The work was done on Navy contract by the Williams Brothers Corporation, Tulsa.

Pipe Line and Terminals Restrictions Now Lifted

All restriction on construction of transportation facilities including oil and gas pipe lines and terminals, loading and unloading facilities were revoked by the War Production Board September 6.

The board also announced revision of the L-41 construction order to permit alteration and repair work not involving exterior additions regardless of the type of work or cost. Alterations formerly were considered as new construction and were subject to the same limitations.

Pipe Line Training

A supervisor's training conference for key personnel of Shell Pipeline Company was held at the University of Texas, last week, by the Bureau of Industrial and Business Extension Training. The purpose of the conference was to train men to instruct others in their company. Fifteen keymen of Shell participated in the conference.

Seeks Gas Plant Permit

The Texas Railroad Commission has scheduled a hearing for September 28 at Austin to consider application of Lone Star Producing Company to construct a gas absorption cycling plant in the Carthage field, Panola County.

The plant would have a capacity of 45 million feet daily and use gas produced from the Upper Pettit zone.

Camacho Says 31 Producers Record of Year in Mexico

A favorable appraisal of the Mexican oil industry was spotlighted by President Avila Camancho in his fifth annual report to the nation at Mexico City on September 1. Mexico's chief executive summed up the past year's achievements of the industry as follows:

"The petroleum industry broadened operations, surpassing previous work and income indices. Fifteen new prospects were surveyed and 30 drilling sites located. Forty-nine wells were completed of which 31 proved productive, with a capacity of 12,120 barrels a day.

"A favorable result was given by a well finished at Mision, Reynosa, Tamaulipas, with a daily production of 6 million cubic feet of gas and 70 barrels of distilled products, as well as by a well at Soledad, Alamo, Vera Cruz, which offers possibilities of a new petroleum field.

"Production from petroleum fields was 38,574,000 barrels, an increase of 2,274,000 barrels. Refineries handled 35,360,000 barrels.

"Petroleum reserves are calculated at 870 million barrels.

"The capacity of the Azcapotzalco refinery was augmented and the tasks of installing new plants and amplifying the Poza Rica-Azcapotzalco pipe line are under way.

"Storage plants were completed at Campeche, Merida and Punta Prieta, in Lower California, as well as the one at Brownsville, Texas, which is destined to supply an important zone along the frontier.

"Seventeen locomotives acquired by Petroleos Mexicanos already represent an important aid in bettering the distribution of fuel.

"Four thousand, six hundred and seven million liters of fuel were distributed, with a value of 380,848,000 pesos, an advance of 407 million liters and of 68,523,000 pesos as compared with last year. Foreign sales jumped 9,860,000 pesos, soaring to 51,260,000 pesos."

"Ideal for the Tax-Eaters"

Administration of public land, spread over a dozen bureaus and departments, was cited last week by Comptroller General Lindsay C. Warren as an argument in favor of President Truman's request for broad powers to reorganize government agencies.

Testifying before the House Expenditures Committee, Warren declared the government needed a "house cleaning," commenting that *"the present system is probably an ideal one for the tax-eaters and those who wish to keep themselves perpetually attached to the payroll, but it is bad for those who have to pay the bill."*

Other instances of duplication cited by Warren included:

The transportation field is divided among 75 bureaus, divisions and agencies. The government's travel and freight bill, he said, is as much as it cost to run the whole Federal Establishment 30 years ago.

The Labor Department collects statistics on labor from the individual workers, while the Commerce Department collects the same material from employers.

There are at least 12 federal retirement systems, each with its own rules.

Public housing is financed by 15 agencies.

Labor relations are spread over eight departments and agencies.

There were indications, however, that the President's plan will not go through Congress as presented, and legislation has been introduced which would exempt 21 agencies from presidential reorganization.

International Petroleum Cooperative Cowden's Goal

The goal of the International Cooperative Alliance Conference to be held in London, England, soon is an international petroleum cooperative which will serve 41 countries, Howard A. Cowden, president and general manager of the Consumers Cooperative Association, of Kansas City, has announced this recently.

Cowden, who will be a delegate to the conference, said, "We propose through the International Cooperative Petroleum Association, comprising national cooperative wholesale organizations, to extend this membership on a democratic basis, with the privilege of one vote for each member, and to distribute the savings to the purchasing or consuming group."

"A marked effect on the trade balances among the various nations," is seen by Cowden from such an organization. "A world oil pool which would function in fields outside of the major oil-producing nations would have the effect of prorating oil production so that demand and production could be established on a basis consistent with terms of the Atlantic Charter."

Tanker Deliveries Stay Closer to Normal Rate

Only 84 vessels were delivered by American shipyards in August, the lowest figure touched in 36 months, it was reported September 6 by the Maritime Commission.

A total of 15 tankers of various types were delivered, however, which was closer to the level of preceding months than was the all-over figure.

Tanker deliveries included two T-2 oil carriers by the Alabama Dry Dock and Shipbuilding Company, Mobile; one T-3 naval tanker by Bethlehem-Sparrows Point Shipyard, Inc., Sparrows Point, Maryland; three T-2 tankers by The Kaiser Company, Inc., Swan Island, Oregon, yard; one T-2 naval tanker by The Marinship Corporation, Sausalito, California; two T-1 coastal naval tankers by St. Johns River Shipbuilding Corporation, Jacksonville; four T-2 tankers by the Sun Shipbuilding and Dry Dock Company, Chester, Pennsylvania, and two T-1 coastal tankers by Todd-Houston Shipbuilding Corporation, Houston.

Geological Maps Issued On Houston County, Texas

Geologic maps of Houston County, Texas, to accompany a report on that county, have been published by the Bureau of Economic Geology, University of Texas, Austin, Texas. The maps show geologic formations of the Weches, Bluff City and Hall's Bluff quadrangles, on the scale of eight inches equals one mile, and the first two of a series of 12 covering the north half of Houston County.

Court Declares Resolution on F.H.E. Case Does Not Make or Change Law

Resolution 50, passed by Congress since the F.H.E. decision which threw doubts on the right to deduct intangibles, has drawn a statement from the Fifth Circuit Court of Appeals of New Orleans which handed down the original decision. The court points out "it is not an act of Congress . . . it does not make law or change the law . . . it does not alter the statutes as they existed when the taxes in (the F.H.E.) controversy accrued." the full statement follows:

"Resolution No. 50 adopted by the House of Representatives June 22, and agreed to by the Senate, July 21, 1945, is urged as requiring a reconsideration. The resolution is not an act of Congress approved by the President or passed over his veto. It does not make law, or change the law made by a previous Congress or President. It does not alter the statutes as they existed when the taxes in controversy accrued. As an expression of opinion on a point of law it would of course be entitled to most respectful consideration by the courts, which under the Constitution exercise the judicial power, that is, the power to decide cases. We do not think the resolution was intended as an intrusion upon the judicial power, but only as an assurance to those engaged in the oil and gas well business that the special favor heretofore extended them by the 'expense option' of the Treasury regulation which the Treasury Department had declared its purpose to continue, had the backing of those voting for the resolution. It was not its purpose to enlarge or extend the regulation beyond the understanding and practice of the Treasury Department which had made and administered the regulation. The decision in this case, and in the others cited by the tax court in its opinion, are in accord with the limitations which the Treasury Department has itself put on the application of its own regulation. Each of these cases upholds the action of the Treasury Department."

Crude Oil Production in the United States

(Estimates, compiled by The OIL WEEKLY. All figures indicate daily averages, in barrels.)

STATE OR DISTRICT	PRODUCTION IN WEEK ENDED Sept. 8	Sept. 1
Alabama	1,000	1,000
Arkansas	78,650	79,000
California	880,000	888,200
Colorado	10,750	11,750
Florida		200
Illinois	205,200	200,600
Indiana	13,600	13,100
Kansas	255,200	272,050
Kentucky	28,450	28,400
Louisiana	362,200	365,450
North Louisiana	70,200	69,750
South Louisiana	292,000	295,700
Michigan	45,200	46,700
Mississippi	55,750	54,500
Missouri	100	100
Montana	24,435	24,200
Nebraska	850	850
New Mexico	108,275	103,700
New York	13,875	13,150
Ohio	7,110	6,750
Oklahoma	390,150	390,100
Pennsylvania	38,350	36,900
Tennessee	35	35
Texas	1,889,500	2,222,700
Upper Gulf Coast	467,700	537,650
East Texas Field	315,300	380,950
Rest of Eastern Texas	128,450	145,600
Lower Gulf Coast	220,500	255,650
Southwest Texas	58,850	81,850
South Central Texas	16,500	21,600
West Texas	452,000	526,600
North Texas	141,900	152,800
Panhandle	88,000	88,000
West Virginia	9,315	8,950
Wyoming	112,400	115,050
Total United States	4,530,395	4,883,525

Oil Industry Into Steel Market for Replenishments

Higher prices for steel were in prospect last week as the OPA reportedly began another analysis of the adequacy of present ceilings on steel products.

Representations have been made that most of the common steel products are being made today at a loss or, at best, a break-even point, while the industry has lost nearly all of its volume-guaranteeing war contracts. However, it is believed, new orders from the oil industry alone will go far to make up the gap occasioned by the halting of war production.

Petroleum operators are coming into the market for heavy quantities of steel, both for current and immediately prospective activities and to replenish inventories of well casing and drill pipe, depleted during the war.

Oil companies are said also to be specially interested in the production of "one trip" steel drums, and some sources in the steel industry believe that steel requirements over the next several months for that production alone will approximate the Army's need for it.

Hearing to Set Value of Gas Used but Not Sold

The first hearing to determine the market value of gas produced and used but not sold will be held by the Texas State Comptroller in Austin late this month. Under provisions of the new gas tax law, hearings are set and evidence presented when the comptroller differs with the taxpayer as to the value of such gas.

Sinclair Prairie Oil Company applied for the hearing after the comptroller questioned values reported by the company. Results of the hearing may establish important precedents.

Industry Leaders to Go to London For Discussion of Petroleum Pact

Cabinet-level conferences with the British looking toward an agreement on the revised Anglo-American petroleum pact will open in London September 17.

Secretary Ickes will lead the American delegation, other members of which will be Deputy Administrator Davies and Charles B. Rayner, petroleum adviser to the Department of State, and with them will go six leaders of the oil industry, all members of the national policy committee of the PIWC as technical advisers. The industry group will consist of William R. Boyd, Jr., president of the API and chairman of war council; A. Jacobsen, president of Amerada Petroleum Corporation and chairman of the oil policy committee; George A. Hill, Jr., president of Houston Oil Company; Walton Jones, president of Cities Service Oil Company; Joseph E. Pogue, vice president of Chase National Bank, and Ralph T. Zook, president of the Independent Petroleum Association of America.

The original agreement was signed August 8, 1944, by Lord Beaverbrook for the British government and then acting Secretary of State Stettinius for the United States. It was sent to the Senate for ratification by President Roosevelt on August 24, but was withdrawn when opposition arose in the industry which saw possibilities of federal control over domestic operations and contended excessive power was given the proposed international commission.

Government representatives did not agree, but expressed willingness to revise the document to give the industry the assurance it desired and succeeded in doing so after a number of meetings with industry representatives. Unofficial conversations also were held with the Senate Foreign Relations Committee.

As a result, the American delegation will go to London with proposals that have widespread domestic support in industry and congressional circles. Both governments have undertaken, as early as practicable, to enlist the participation of other producing and consuming countries in an international agreement for which the Anglo-American discussions will provide the basis.

ODT Liquid Transport Department Is Abolished

With a note of appreciation to the industry for its cooperation, the Office of Defense Transportation announced last week that its liquid transport department, which directed and coordinated the flow of petroleum and products during the war, will be abolished September 20.

With the discontinuance of the department, shippers of liquid products in railway tank cars, highway tank trucks and pipe lines will be freed of all federal wartime requirements, including the submission of reports.

In a letter announcing the action, Porter L. Howard, director of the division, and A. V. Bourque, S. F. Niness and R. W. Shields, directors, respectively, of the tank car, tank truck and pipe line divisions, commended all shippers of oil and products for the "wholehearted cooperation, the consideration of our problems which you have so unstintingly given us, and the important part you have played in winning the war."

Better Gas Accounting Rule Proposed in Texas

Plans for a better gas accounting system in Texas have been outlined before the Texas Railroad Commission, the purpose being to provide for a more accurate check on gas used for jetting or gas lift.

The commission offered a new form to be filed monthly showing the total oil produced from each lease, the total liquids produced, the percentage of water, the quantity of gas used, the input gas-oil ratio and the input gas liquid ratio, the report to be made by leases rather than by wells. Samples of the new form will be sent to operators with the next notice of statewide hearing, and their comment is invited before it is adopted by the commission.

The statutory limit of 10,000 to 1 provided for gas lift is a maximum figure and lower allowances may be made by the commission to prevent waste, it was pointed out. Some operators have urged that proof be offered concerning the volumes of gas actually needed before any well is permitted to use gas lift. Some believe that the order exempts leases which use tail gas from gasoline plants or gas from other operations which is normally flared. Others say that leases should be exempt which use casinghead gas that is produced on a lease, compressed, and used for jetting on that same lease.

SONJ to Construct Large New York Office Building

Standard Oil Company (New Jersey) will erect a 33-story, modern office building in New York between West 51st and West 52nd Streets, as soon as zoning requirements can be met and wartime restrictions are eased. The proposed edifice, containing more than 350,000 square feet of rentable area, will cost approximately $6 million and the building is approximately 100 percent rented, Standard Oil Company having agreed to lease all office space above the second floor.

Jersey Standard officials have announced that the space will be used to consolidate its offices in Gotham.

Downward Trend in Crude Production Shown in June

Daily average crude production turned downward in June for the first time in several months, dropping from 4,870,000 barrels in May to 4,854,000 barrels, it was disclosed last week by the Bureau of Mines. A drop of 15,000 barrels in Texas accounted for most of the decline.

Demand for domestic crude averaged 5,003,400 barrels daily, 49,900 barrels above the May record, necessitating withdrawal of 149,700 barrels daily from stocks, which declined during the month from 228,214,000 to 223,262,000 barrels.

Crude runs to stills also set a new record, 4,989,000 barrels daily, topping May by 76,000 barrels daily. Total deliveries of military and civilian motor fuel amounted to 70,500,000 barrels daily, but civilian demand was considerably higher than civilian production, resulting in a shrinking of stocks from 48,483,000 to 47,493,000 barrels. Total stocks of refined oils, however, increased 2,625,000 barrels during the month, to 221,189,000 barrels.

With the end of the war, the bureau resumed publication of its full report, suspended three years ago.

Its "balance sheet" showed that supply in June included production of 145,610,000 barrels of crude, 9,281,000 barrels of natural gasoline and 240,000 barrels of benzol, a total of 155,131,000 barrels; with imports of 5,620,000 barrels of crude and 4,055,000 barrels of refined products, a total new supply, all oils, of 164,806,000 barrels.

Against this, total demand was 167,283,000 barrels, consisting of exports of 2,915,000 barrels of crude and 17,567,000 barrels of refined products, and domestic demand for 60,597,000 barrels of motor fuel, 4,741,000 barrels of gerosine, 14,719,000 barrels of distillate fuel oil, 43,151,000 barrels of residual fuel oil, 3,132,000 barrels of lubricating oil, 255,000 pounds of wax, 785,000 short tons of coke, 4,213,000 short tons of asphalt, 562,000 barrels of road oil, 9,482,000 cubic feet of still gas, 3,013,000 barrels miscellaneous, and 2,151,000 barrels losses.

Stocks at the close of the month included 218,218,000 barrels of gasoline-bearing crude in the United States, 5,044,000 barrels heavy crude in California, 4,723,000 barrels of natural gasoline and 221,189,000 barrels of refined products, a total of 449,174,000 barrels, or 81 days' supply.

Seized Plants Released

Three of the five oil plants seized by the government in the final days of the war because labor controversies threatened to interfere with production of war products were ordered returned to their owners September 6 by Stabilization Director William H. Davis.

The three plants returned were those of The Texas Company at Port Arthur, Texas, The Pure Oil Company, Dawes, West Virginia, and Humble Oil & Refining Company, Ingleside, Texas.

Geologists on Pacific Coast Find Regular Discussions Most Profitable

In different parts of the United States, for several years past, "study groups" of members of the American Association of Petroleum Geologists have gathered together periodically to study certain specialized phases of their profession. Their subject matters have included such things as reservoir mechanics, interpretation of electric logs, valuation of oil properties, aerial photography, sedimentation, and the like. Some of these group meetings have been in the nature of lecture courses, while others have partaken more of the character of seminars, in which the various members took part.

One of the most successful of these study groups is functioning at present in Los Angeles. The subject is stratigraphy —mainly that of the California oil districts, but with occasional sallies farther afield.

Keep Up Attendance

The meetings began last January, and have been held about every two weeks up to the present time. The membership has been polled a couple of times to see whether the meetings should be discontinued for the summer, but both times the prevailing sentiment was against such a move. Generally the attendance runs between 50 and 60, occasionally going over 70, but lately it has been around 40, due to the absence of many members on field work and of others on their summer vacations. About 140 are on the attendance roll for the year. Martin Van Couvering is chairman of the group and its guiding spirit.

The usual plan of the meetings is to devote the first part of the evening to a principal paper by some expert, with the latter part taken with short papers by various members, reviewing the literature on individual formational units assigned to them by the leader of the group.

A number of outstanding geologists have presented papers of unusual interest, as indicated by the following selections:

"Intercontinental Correlations," by Dr. Chester Stock, of California Institute of Technology.

"Stratigraphy of the Santa Maria District," by Dr. Wendell Wooding, of United States Geological Survey.

"Discovery of Vertebrate Fossils in Colombia, South Africa," by Dr. N. A. Stirton, of University of California.

Many of the formational synopses, also, have been painstakingly prepared, and represent real achievements in the study of stratigraphy. Up to the end of August, 45 such papers had been presented at the meetings, each by a different member of the study group. Three of them were by women. The authors of these papers have included many leading geologists.

It is planned to continue the meetings to the end of the year, or as long as the demand for them continues.

Reimbursement Plan for Aviation Gasoline Dropped

Termination of the aviation gasoline reimbursement plan, effective September 30, was announced by PAW September 6.

Part of the war program, the plan was designated to protect refineries engaged in the manufacture of aviation gasoline and its components against loss in the event of changes in specifications or extraordinary operations requested or approved by PAW.

With the aviation gasoline program terminated, no further need existed for continuance of the reimbursement plan, but it will be continued throughout the month to enable refiners to use up components they have on hand or on order.

Pacific Section A.A.P.G. Continue Meetings

Members of study group of A.A.P.G.'s Pacific Section have met twice a month since last January, became so interested they voted against adjourning for the summer. Many topflight West Coast geologists attend the sessions regularly.

Refinery Runs Further Reduced But Domestic Crude Output Still High

Reduction in demand for petroleum products with the close of the Japanese war has been evidenced by sharp cutting back of refinery runs in each of the past two weeks. In the week ended September 1 runs to stills were down to 4,685,000 barrels, a decline of 455,000 from the daily rate of the week ended August 18, which had been the highest in history at 5,140,000 daily.

This sharp reduction of refinery throughput was made in spite of the prospects of some stimulation of civilian demand by the Labor Day holidays. However, the runs of 4,685,000 barrels daily were still somewhat above the trend of a year previously, as runs in the week ended September 2 last year averaged 4,595,000 per day.

Domestic production of crude has come down only nominally, however. The output in the week of September 1 averaged 4,876,000 barrels daily, down 16,000 from the previous week and off only 58,000 from the week of August 18, which had been only slightly under the all-time peak of 4,944,000 daily reported for the week ended July 14 this year.

Apparently, the lowering of refinery runs has been accompanied by reduction in imports of crude. For in spite of sustained domestic crude production, the stocks of crude have not been increasing. They decreased, in fact, by 97,000 barrels in the week ended August 25, having dropped to 211,813,000 barrels, a new low since 1921. The crude stocks are about 11 million barrels lower than at this time last year.

In reflection of lower refinery runs, production of gasoline at refineries, including natural blended, totaled only 14,904,000 barrels in the week ended September 1, compared with 15,986,000 barrels the previous week. Total stocks of finished and unfinished gasoline were reduced 475,000 barrels during the week, having declined to 84,218,000 barrels, but that amount was nearly 6 million barrels or 7.5 percent more than the 78,362,000 barrels held September 2 last year. Civilian grade gasoline stocks increased to 47,599,000 barrels from 46,540,000 at the beginning of the week, and compared with 41,294,000 barrels of civilian grade held September 2 last year. But military and other stocks decreased to 36,619,000 barrels from 38,153,000 within the week and compared with 37,068,000 barrels on hand at the beginning of September last year.

Production of gas oil and distillate fuel oil totaled 5,030,000 barrels in the week of September 1, up 70,000 from the previous week and 453,000 barrels or 10 percent more than output of 4,577,000 barrels in the corresponding week last year. Stocks were increased during the week by 1,077,000 barrels, having risen to 40,859,000 barrels.

Residual fuel oil production totaled 8,528,000 barrels, down 828,000 from the week before although 307,000 barrels or nearly 4 percent above output in the comparable week a year ago. Stocks were increased 606,000 barrels during the week to 46,807,000 barrels, but that amount was 13,065,000 barrels or nearly 22 percent short of the 59,872,000 barrels held September 2, 1944.

Trends of Operations and Changes in Stocks

Figures on crude stocks are from Bureau of Mines weekly reports; all others from American Petroleum Institute weekly reports, which are estimates on Bureau of Mines basis.

(All figures in thousands of barrels—add 000)

HIGHS AND LOWS OF RECENT YEARS

ITEM	Crude Oil Prod. Barrels Daily	Crude Oil Prod. Week Ended	Runs to Stills Barrels Daily	Runs to Stills Week Ended	Crude Stocks Barrels	Crude Stocks Week Ended	Gasoline Stocks Barrels	Gasoline Stocks Week Ended	Gasoil and Distillate Stocks Barrels	Gasoil and Distillate Stocks Week Ended	Residual Fuel Oil Stocks Barrels	Residual Fuel Oil Stocks Week Ended
Highs:												
1941	4,337	11–22	4,120	10–18	266,187	3–29	99,727	3–29	[1]54,983	11–15	102,448	1– 4
1942	4,337	2– 7	3,961	1– 3	263,208	3–28	[1]109,281	3–14	47,861	11–14	95,857	1– 8
1943	4,436	11–13	4,331	12– 4	245,752	5–29	94,159	3–20	47,187	11–27	72,881	1– 2
1944	4,762	9–30	4,798	12–30	240,992	1– 1	89,162	4– 1	48,863	10–28	64,744	10– 7
1945	[4]4,944	7–14	[5]5,140	8–18	224,079	6– 2	99,012	3–24	40,859	9– 1	56,074	1– 6
Lows:												
1939	[3]1,601	8–26	3,125	2–18	[2]229,127	10–12	71,152	10– 7	20,722	4–15	105,397	4– 3
1941	3,364	1–11	3,490	1–18	240,399	11–15	79,923	10– 4	28,382	4–12	90,914	7–13
1942	3,297	7– 4	3,393	5–23	231,896	12–12	75,934	12– 5	29,240	4–25	72,962	12–26
1943	3,821	1– 9	3,579	3–18	232,191	1– 9	68,182	10–16	30,732	4– 3	57,596	12–25
1944	4,357	1– 1	4,228	2–12	220,258	9– 9	76,302	1– 1	30,232	4–19	49,737	3–18
1945	4,678	1– 6	4,656	1– 6	211,813	8–25	84,218	9– 1	26,483	3–17	38,548	5–26

TRENDS OF 1944 AND 1945

Trends in Week Ended:	Crude Oil Production Daily	Crude Oil Runs to Stills Daily	Crude Oil Stocks Week End	Gasoline Production Weekly	Gasoline Stocks Week End	Gasoil and Distillate Production Weekly	Gasoil and Distillate Stocks Weekly	Residual Fuel Production Weekly	Residual Fuel Stocks Week End
					Week End	Weekly	Week End	Weekly	Week End
1944:									
January 1	4,357	4,453	240,992	13,192	76,302	4,575	42,310	9,141	57,380
January 29	4,400	4,359	240,251	13,427	81,075	4,054	37,266	8,889	52,857
February 26	4,423	4,377	237,137	13,183	85,248	4,558	33,766	8,952	51,387
March 25	4,385	4,443	236,285	13,362	87,287	4,979	31,319	9,018	51,669
April 1	4,383	4,435	234,667	13,824	89,162	4,450	30,530	8,367	51,326
April 29	4,431	4,300	235,342	13,126	88,342	4,284	30,236	8,398	49,985
May 27	4,514	4,532	234,423	13,502	86,468	4,702	32,035	8,568	49,812
July 1	4,587	4,638	228,860	14,052	83,559	4,496	35,360	8,872	52,235
July 29	4,608	4,627	225,112	14,115	82,665	4,833	38,135	8,900	56,280
August 26	4,667	4,698	222,931	14,112	80,740	4,566	41,453	8,680	59,839
September 30	4,762	4,775	222,393	14,494	78,028	4,622	45,329	9,292	64,226
October 28	4,740	4,658	223,235	14,117	79,058	4,772	48,705	8,985	64,382
December 2	4,712	4,693	221,591	14,853	80,427	4,082	45,832	8,981	61,727
December 9	4,704	4,552	220,258	14,611	80,880	4,056	44,430	8,923	60,458
December 16	4,695	4,537	222,075	14,145	82,747	4,353	42,413	8,727	59,280
December 23	4,729	4,682	222,575	14,635	83,355	4,605	40,846	8,798	58,509
December 30	4,705	4,798	222,998	15,342	86,614	4,257	39,495	9,156	57,430
1945:									
January 27	4,727	4,756	221,310	14,957	88,223	4,843	33,651	9,252	51,119
February 24	4,777	4,803	219,351	15,500	95,972	4,958	28,753	9,084	46,713
March 31	4,781	4,677	223,782	14,644	98,758	4,548	26,889	9,184	41,745
April 28	4,805	4,780	223,474	14,633	94,068	4,636	28,273	9,379	39,813
May 26	4,887	4,950	222,831	15,194	89,121	4,667	29,184	9,670	38,548
June 2	4,859	4,804	224,079	15,317	88,696	4,857	29,819	9,437	39,022
June 9	4,853	4,827	221,552	15,256	87,896	4,842	30,339	9,382	38,996
June 16	4,888	4,915	221,932	15,132	87,504	5,342	30,397	9,252	39,482
June 23	4,898	5,002	220,974	15,367	87,462	5,014	31,761	9,558	39,893
June 30	4,903	4,999	220,781	15,546	86,472	4,910	32,213	9,077	40,488
July 7	4,886	5,006	217,250	15,082	86,329	4,875	33,667	9,238	40,754
July 14	[4]4,944	4,945	216,355	15,349	85,401	5,197	34,804	9,337	41,489
July 21	4,944	4,927	218,108	15,430	85,930	5,090	35,458	9,071	42,480
July 28	4,930	4,996	218,507	16,106	86,008	4,598	36,071	9,586	42,283
August 4	4,922	5,077	215,382	16,053	84,812	4,758	36,721	9,451	42,842
August 11	4,934	5,072	214,098	15,547	86,307	5,082	36,977	[6]9,434	42,927
August 18	4,934	[5]5,140	211,910	15,890	85,985	[5]5,344	38,675	9,934	44,845
August 25	4,892	4,931	[4]211,813	15,986	84,693	4,960	39,782	9,356	46,201
Sept. 1, 1945	**4,876**	**4,685**	.....	**14,904**	**84,218**	**5,030**	**40,859**	**8,528**	**46,807**
Sept. 2, 1944	4,658	4,595	[5]222,931	14,409	78,362	4,577	40,754	8,221	59,872
Change:									
In week	—16	—246	—97	—1,082	—475	+70	+1,077	—828	+606
In year	+218	+90	—11,118	+495	+5,856	+453	+105	+307	—13,065
In year	+4.7%	+2.0%	—5.0%	+3.4%	+7.5%	+10.0%	+0.3%	+3.7%	—21.8%

[1] All time peak. [2] Lowest between January, 1922 and July 1, 1944. [3] Lowest since October, 1922, due to shutdown of six Mid-Continent states. [4] Lowest since December, 1921. [5] Stocks, August 26, 1944.

Texas Fields Named

Names for two recent South Texas oil and gas discoveries have been announced by Don O. Chapell, chairman, oil field nomenclature committee of the South Texas Geological Society.

The name "Rachal" has been given the field opened by Humble Oil & Refining Company's B. A. Skipper, Jr., 1 in Brooks County. Magnolia & Abercrombie's H. H. Dohe 1 is credited with opening the "La Sal Vieja" field near Raymondville, Willacy County.

West Texas Line to Open Empire Southern Market

The Empire Southern Gas Company, Fort Worth, is providing a market for its sweet gas production in the Shafter Lake field, Andrews County sector of West Texas, through the construction of a 41-mile, 8⅝-inch welded transmission line that will supplement Texas Panhandle gas purchases in supplying industrial and domestic consumers at Big Spring and nearby towns.

The new unit will extend east to connect with the company's 30-mile, eight-inch that receives Panhandle gas from the West Texas Gas Company. Ten miles of two-inch gathering system will be installed in the Shafter Lake field. No booster station will be required as the 2900-foot Yates sand wells have 2000 pounds rock pressure. The gas is dry and sweet. A. C. Price Company has the construction contract, which is scheduled to be completed by November 8.

Bids Are Asked on 80-Mile, 14-Inch East Texas Line

Lone Star Gas Company, Dallas, has solicited bids for the construction of an 80-mile, 14-inch natural gas transmission line from the Carthage field, Panola County sector of East Texas, to connect with its trunk line system serving the Opelika field, Henderson County, Texas.

This line was authorized last October when the company contracted to purchase gas from the extensive holdings of Rogers Lacy, who is associated with the Lone Star Producing Company in the erection of a 55 million cubic foot daily capacity recycling plant in the Carthage area. The Carthage-Opelika carrier will have a capacity of 100 million cubic feet daily when operating at 1200 pounds pressure. It is to be in service late this year.

Arkansas-Louisiana Firm Plans 18-Mile Texas Line

Arkansas-Louisiana Gas Company, subsidiary of Cities Service Oil Company, plans 18 miles of eight-inch gas line from the new Whelan Rodessa Glen Rose gas pool in the Harleton area of western Harrison County in East Texas, to Daingerfield in Morris County. Pipe is available and survey is being made. The company, which is negotiating for the production from the two wells in the field, also plans to install a gathering system in the area.

Oklahoma Line Reconditioned By Bartlesville Contractor

H. C. Price Company, Bartlesville, Oklahoma, pipe line and welding contractors, have been awarded contracts for the following work which is now in progress.

Taking up, reconditioning and relaying 30 miles of ten-inch oil line for Shell Pipeline Corporation, from Cushing, Oklahoma, northeast to the Arkansas River; taking up 26 miles of 12-inch gas line and laying 26 miles of the same size pipe from Chickasha to Stroud, Oklahoma, for the Oklahoma Natural Gas Company.

Houston Firm to Take Up South Louisiana Line

American Petroleum Company has awarded a contract to Associated Contractors and Engineers, Houston firm, to take up 17 miles of six-inch oil line near the Bancroft station in Beauregard Parish, South Louisiana.

About 15 miles of this line will be used in laying a line from the Silsbee field to the Arriola field in Hardin County, Upper Texas Coast. ACE also has the contract for this job.

Proposal to "Dump" Gas in California Is Protested

California has adequate reserves of natural gas to supply the needs of the state for more than 25 years, C. P. Watson, president of the Oil Producers Agency of California, declared in discussing the proposed natural gas pipe line from West Texas and New Mexico fields to California.

"There is no need for the dumping of an outside supply into California," Watson said. "California is a separate gas province, and its presently known reserves now approximate 14 trillion cubic feet. The cost of such a pipe line, over 1000 miles across the desert, would have to be borne by the ultimate consumer."

Watson cited that the dumping of outside natural gas into California would inevitably stifle future exploration for natural gas in California.

"Moreover, California is the only state in the union that has no interstate commerce in gas, and hence to date is not subject to the mandates of the Federal Power Commission.

"If out of state natural gas is brought into California, and is commingled with California gas, the FPC would be in a position to invoke its 'end use' rules, thus dictating to California which of its occupations, industries, and enterprises could use gas for fuel, and which could not," Watson declared.

The construction of a 720-mile, 26-inch natural gas line from Jal, New Mexico, to a point near Blythe, California, was recently proposed by the El Paso Natural Gas Company.

To Recondition Line

United Contracting Company, Wichita Falls, Texas, has been given a contract by Bell-Western Corporation, Tulsa, to recondition a 4½-inch oil line from the Fargo and Odell pools of Wilbarger County, Texas, east across Red River and through Tillman County, Oklahoma, to the Bell Oil & Gas Company's refinery at Grandfield, Oklahoma. The Bell line is the sole pipe line carrier out of the Wilbarger County pools where additional development is expected.

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☆ Oklahoma

New Pool Near Paden Seen; Logan Producer Completed

New oil pool likely west of Paden; Logan County pool opener completed at 125 barrels of oil daily, natural; West Edmond flank wells get poor show in Wilcox; Anderson-Prichard enters South Moore area; South Cement wildcat gets good gas show; shallow test planned for area east of Mangum.

Okfuskee County: J. E. Crosbie, Inc., et al appear to be giving the area 1½ miles west of Paden a new and possibly important pool at Novotny 1, NE SE SW 20-12n-7e. Cromwell sand was topped at 3832 feet; a drill-stem test at 3844-74 feet, total depth, recovered oil in 7 minutes. Seven-inch pipe was cemented at 3832 feet and when the plug was drilled the well started flowing into pits at the rate of nearly 100 barrels an hour. With only the Paden pool to the east, the area is comparatively virgin although good areas to the northwest and west have been producing considerable oil for some years.

Logan County: A new area 4 miles southeast of Meridian is now ready for development with official completion of The Texas Company's Arundel 1, SE NE SW 2-15n-1w. The new pool has been named Evansville Northwest and the discovery tested 125 barrels of oil daily, natural, from Bartlesville sand between 5231-43 feet. The well flowed through 20/64-inch tubing choke and oil tests 40 gravity. It originally had been drilled to the Second Wilcox sand at 5887 feet, total depth, but this horizon failed to produce.

West Edmond: A try for Ordovician production on the east flank of the big West Edmond field proved disappointing as Peppers Refining Company reported a shutdown at Gaylord 1, NW NE 22-13n-4w, at 7338 feet. This is the first well on the east side of the south end of the field to drill to the Wilcox. The first Wilcox zone was had from 7198-7222 feet and the second zone was topped at 7308 feet. Only 2½ feet of Bois d'Arc section was logged from 6688-90 feet.

Cleveland County: Anderson-Prichard Oil Corporation has staked Stephens Unit 1, SW SW NE 26-10n-3w, a north 40-acre offset to Mid-Continent Petroleum Corporation's Jury 2, a Bartlesville sand producer, South Moore area. This horizon, considered as a strat trap accumulation on the structure, has accounted for the field's best producers to date.

Caddo County: Enough gas pressure to lift the swab out of the hole was reported at Henry Schaffer et al's Cook 1, NE SE NE 35-5n-9w, wildcat south of the Cement area, which was testing. Black fluid, slightly brackish and oily, also was reported. The well, which has experienced considerable mechanical difficulties during the last few months, was drilled to 9200 feet. The showing is believed from the Medrano sand, which was topped 200 feet lower than it is found in the Cement pool. The structure is believed to be of the graben type.

Greer County: East of Mangum the Stephens Petroleum Company staked John 1, SE SE NW 24-5n-21w, in a virgin area, and the well will be watched closely. Operator has assembled a block of 2900 acres and also has a concentration of leases in Twp. 7n-21w, near the Lance Creek field, which produces from the shallow Granite Wash. Some wells have been drilled in the area from 600 to 1400 feet, the nearest being about 2 miles away, but no commercial production has yet been developed.

Major County: The Superior Oil Company of California's Manning 1, NE NE NW 27-22n-10w, prospective Anadarko Basin pool opener, continues testing with unconfirmed reports stating that the wildcat is flowing at the rate of about 4 barrels an hour through 2-inch tubing. The wildcat is being drilled "tight" but additional tankage was being moved on location and a map concern was reported to have been ordered to prepare ownership maps covering several townships in Major and adjoining counties. The wildcat is near Ringwood and a producer undoubtedly will create considerable activity. Production is from the Prue sand at approximately 6780 feet. The well is making about ½ million cubic feet of gas daily with the oil.

Garvin County: Continental Oil Company continues testing Butterly 1, NW SW SE 14-1n-1e, planning for a production try in the Oil Creek sand. The well has been swabbing about 50 barrels of oil daily from Arbuckle lime at 4255-4316 feet. Shows of heavy oil were logged up the hole. Plans call for perforating pipe opposite the Oil Creek sand topped at 3878 feet, where a drill-stem test at 3875-4077 feet recovered 1720 feet of 28-gravity oil.

Wells Completed in United States in Week Ended September 8, 1945

Data preliminary and subject to revision. Revised and more complete data on all completions shown in monthly summary of drilling, published in second issue of each month. More detailed data on wildcats published in third issue of each month.

State or District	FIELD COMPLETIONS: New Wells *Oil	Gas	†Input	Dry	Total	Old Wells Deepened	WILDCAT COMPLETIONS *Oil	Gas	Dry	Total	ALL COMPLETIONS This Week	Last Week	Cumulative This Year	Cumulative Last Year
Alabama	....	....	....	....	....	....	....	....	....	....	....	....	23	23
Arizona	....	....	....	....	....	....	....	....	....	....	....	....	....	6
Arkansas	2	....	....	....	2	....	....	....	....	....	2	13	129	161
California	95	3	....	7	105	....	2	....	14	16	121	....	1,517	1,405
Colorado	1	....	....	....	1	....	....	....	1	1	2	1	21	18
Florida	....	....	....	....	....	....	....	....	....	....	....	1	12	1
Georgia	....	....	....	....	....	....	....	....	....	....	....	....	6	6
Illinois	19	....	....	6	25	....	2	....	6	8	33	49	1,251	1,308
Indiana	3	....	....	4	7	....	....	....	5	5	12	....	238	214
Iowa	....	....	....	....	....	....	....	....	....	....	....	....	1	2
Kansas	21	6	....	11	38	....	2	....	5	7	45	33	1,144	1,213
Kentucky	17	....	....	6	23	....	....	....	3	3	26	....	368	521
Louisiana	10	2	....	8	20	....	2	....	4	6	26	14	695	519
North Louisiana	6	1	....	4	11	....	....	....	....	....	11	7	261	178
South Louisiana	4	1	....	4	9	....	2	....	4	6	15	7	434	341
Michigan	5	1	....	4	10	....	....	....	3	3	13	13	521	451
Mississippi	3	....	....	....	3	....	....	....	....	....	3	3	257	126
Missouri	....	....	....	1	1	....	....	....	....	....	1	....	31	28
Montana	4	....	....	2	6	....	....	....	....	....	6	18	156	242
Nebraska	....	....	....	....	....	....	....	....	....	....	....	....	3	12
New Mexico	5	....	....	....	5	....	....	....	3	3	8	2	294	279
New York	15	....	10	....	25	....	....	....	....	....	25	25	765	861
North Carolina	....	....	....	....	....	....	....	....	....	....	....	....	1	....
Ohio	3	6	....	2	11	....	....	....	....	....	11	....	648	656
Oklahoma	17	3	4	6	30	....	2	....	6	8	38	45	1,629	1,252
Pennsylvania	27	4	15	3	49	....	....	....	....	....	49	....	2,014	2,064
Tennessee	....	....	....	....	....	....	....	....	....	....	....	....	2	9
Texas	79	16	....	28	115	5	3	1	17	21	141	129	5,017	4,203
E.Tex.Bor. Co.'s	1	3	....	....	4	....	....	....	1	1	5	5	67	22
E. Texas Field	....	....	....	....	....	....	....	....	....	....	....	....	....	3
Rest of E. Texas	1	....	....	3	4	....	....	....	4	4	8	4	153	196
North Texas	20	....	....	14	34	1	1	....	4	5	40	37	1,209	972
W. Central Tex.	....	....	....	....	....	....	....	....	3	3	3	12	323	282
West Texas	21	....	....	3	24	3	....	....	....	....	27	20	1,228	1,099
Tex. Panhandle	3	9	....	....	12	1	....	....	....	....	13	13	421	188
G. Coast, Upper	8	....	....	2	10	....	2	....	....	2	12	11	480	392
G. Coast, Lower	14	....	....	1	15	....	....	1	3	4	19	21	725	663
Southwest Texas	3	4	....	5	12	....	....	....	2	2	14	5	347	312
S. Central Tex.	....	....	....	....	....	....	....	....	....	....	....	1	64	74
Utah	....	....	....	....	....	....	....	....	....	....	....	....	....	1
West Virginia	3	14	....	2	19	....	....	....	....	....	19	....	547	632
Wyoming	3	....	....	....	3	....	....	....	1	1	4	13	112	118
Total U. S.	324	55	29	90	498	5	13	1	68	82	585	359	17,402	16,331

* Includes distillate wells. † Includes salt water disposal wells.

Indian Leases Offered

Bids for oil and gas leases on restricted Indian lands of the Five Civilized Tribes are being received at the office of the superintendent at Muskogee, Oklahoma. Bids will be received until 10 a.m., October 2. Lands offered for lease are in Nowata, Creek, McIntosh, Okfuskee, Hughes, Seminole, Coal, Pontotoc, Garvin, McClain, Grady, Stephens, Carter, Love and Marshall Counties.

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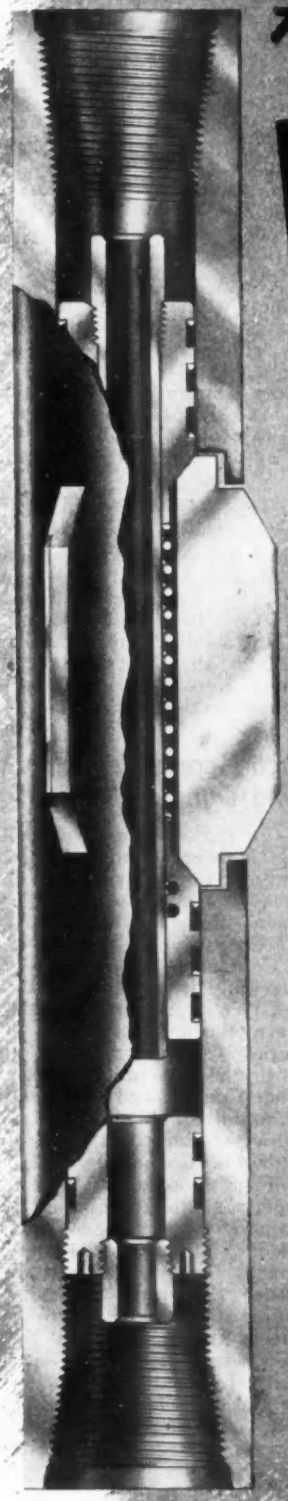

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☆ Kansas

Ellis County Well On Pump; Six New Gassers Completed

Ellis County wildcat pumps 10 barrels of oil an hour; strike west of Wichita draws a 417-barrel daily oil potential; 6 new gassers completed in Kansas; wildcat southwest of Studley produces 280 barrels daily.

Ellis County: Darby & Bothwell, Inc.'s Cromb 1, NE NW NE 22-11s-20w, 6 miles southeast of the Marcotte pool, was pumping 10 barrels of oil hourly from the Lansing lime to definitely establish a new oil area. After recovering black oil from Arbuckle lime the operators plugged back to the Lansing and perforated casing. Considerable oil of a higher gravity rose in the hole and after swabbing 5 barrels an hour it was put on the pump.

Sedgwick County: British-American Oil Producing Company's Petrie 2, pool opener about 2 miles west of Wichita, carries an initial rating of 417 barrels of high gravity oil daily from the Simpson sand at 3387-92 feet. When potential was taken the hole was full of oil. The strike is expected to start an extensive drilling campaign.

Sheridan County: At the northwest end of the Kansas Uplift, Continental Oil Company et al have opened an important new pool at Hoxie State Bank 1, NE NE NE 32-8s-26w. The well has drawn an initial rating of 285 barrels daily from the Lansing-Kansas City lime. The new pool is about 2 miles southwest of the Studley field.

Barton County: Black-Marshall Oil Company completed a big well in the Kraft-Prusa pool at Wodziak 2, CNE SW NE 12-16n-12w. It has been assigned an initial rating of 2480 barrels of oil daily from Arbuckle lime at 3332 feet, total depth.

Six gassers for total new production of more than 57 million cubic feet of gas daily were completed in Kansas last week. All except one in Barton County are in the prolific Hugoton pool. Seward County reported the largest well of the week, gauging 20 million cubic feet daily. The Barton County producer has a capacity of 3 million cubic feet of gas daily.

Missouri

Dan McLaughlin's Johnson 1, NE NW SE 13-65n-21w, Putnam County, was drilling at 1470 feet in Hunton lime, toppped at 1047 feet.

Clay County: Joe Zajik's Fee 1, SE NW NE 35-51n-33w, reported a slight gas show in the Knobtown sand at 312 feet and is drilling below 320 feet.

Nebraska

R. S. Tomer Production Company, Falls City, Nebraska, announced plans for a wildcat test 3 miles southwest of Falls City. Location is Miles 1, NE NE 35-1s-15e, Richardson County. The test will be about 2 miles east and a mile north of the Morrill pool in Brown County, Kansas, and will try for Hunton lime production.

Much Geophysical Work Is Being Done in Kansas

A geophysical and core-drilling campaign is being conducted by a number of major companies in Kansas, probing for new structures and likely drilling areas all along the Kansas Uplift.

Recent surveys show Cities Service Oil Company has a seismograph crew rechecking work done during 1943-44 in eastern Reno and Kingman, northeastern Barber and southeastern Pratt counties. Continental Oil Company has a core drilling unit in Twp 33s-12w, Barber County, and has core-drilled approximately half the township in a northwest-southeast trend.

Gulf Oil Corporation has a seismograph crew operating in Kingman and Harper counties; Phillips Petroleum Company is doing geophysical survey work in Stafford County and Skelly Oil Company is core-drilling in Ford County.

Other exploratory activities include seismograph work in Barton and northwestern Rice counties by Sohio Petroleum Company; core-drilling in Harper County by Sinclair Prairie Oil Company and a similar program by Stanolind Oil & Gas Company in parts of Meade, Edwards, Stafford, Pratt, Barber, Comanche and Gove counties.

Kansas Allowable Fixed

The Kansas Corporation Commission on August 29 fixed an allowable of 275,000 barrels daily for the state in September. This figure includes 5600 barrels of condensate and natural gasoline.

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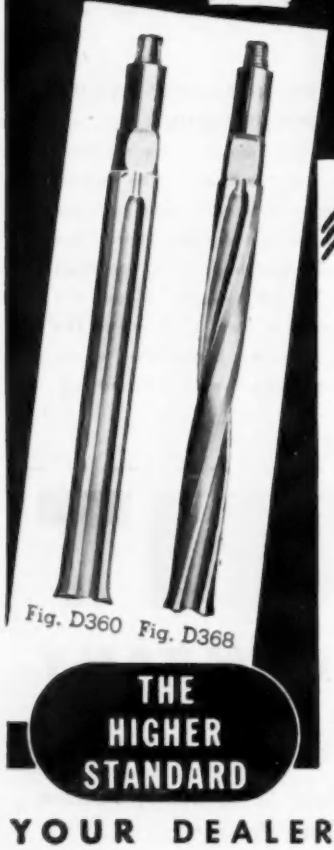

Fig. D360 Fig. D368

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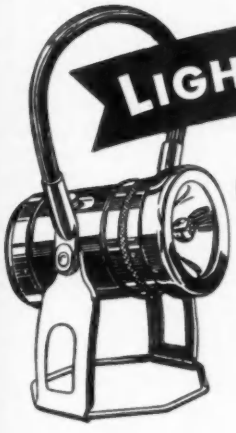

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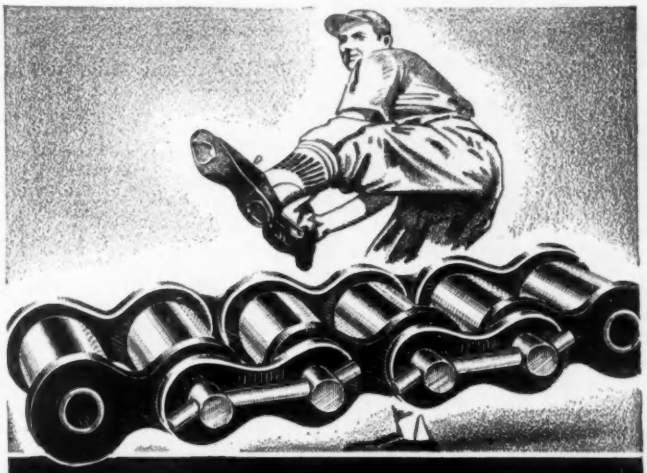

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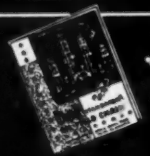

Union Bulletin O-1 covers Oil Field Chain. Ask for your copy.

UNION CHAINS

☆ West Texas

Martin One-Well Pool May Get Silurian Production

Silurian production is indicated for the Martin 1-well pool, Andrews County; southern Ector County Ellenburger prospect has high Devonian marker; Fort Stockton field expanded more than a mile southeast.

Andrews County: Humble Oil & Refining Company's Parker 1, southwest offset to the Martin pool's 6900-foot Clear Fork discovery, recorded a favorable outlook for production from the Silurian, and was drilling dry lime at 8190 feet to explore the Ellenburger. A drill-stem test at 7994-8167 feet yielded gas to the surface within 10 minutes for a rated flow of 500,000 cubic feet daily, and recovered 180 feet of oil and gas-cut mud and 360 feet of 43-gravity oil. Parker 1 indicated a small producer in the Clear Fork, which has sustained a sharp drop in reservoir pressure at the discovery.

Outposts west and south of the Fullerton-Devonian field appeared doubtful for production, and both are structurally low. Frankel Bros. et al's University 1-I, a mile south, was drilling dry lime at 8685 feet and below the projected oil zone. Magnolia Petroleum Company's Stevens 1, 2 miles west of production, was drilling dry lime and chert at 8590 feet.

Sinclair Prairie Oil Company's Ratliff 1, Ellenburger prospect on a geophysical high near the intersection of Andrews, Winkler and Ector counties, was drilling lime at 9170 feet, with top of Devonian tentatively called at 8762 feet. This wildcat is high to the company's 11,322-foot granite failure 3 miles northwest.

Ector County: The Texas Company's Connell 29, 1½ miles west of the Penwell field and an Ellenburger project, entered the Devonian at 7048 feet, and was idle for repairs at 7097 feet. Unusually high prices were paid by Amerada Petroleum Corporation, Gulf Oil Corporation and others for deep rights under leases on the west side of the field, based upon shooting information.

Sinclair Prairie Oil Company's Williamson 1, 2⅜ miles north by west of the TXL field and a failure in the Ellenburger at 9865-9923 feet, was showing a little oil and gas with 150 pounds pressure on tubing while unloading to test Devonian open hole at 7865-8050 feet. The Texas Company's T. P. Land Trust 1-D, 1¼ miles east of nearest Devonian production, missed this upper pay in drilling to 8138 feet, and will continue to the Ellenburger.

Discoveries: Shell Oil Company and The Texas Company's Ratliff-Bedford 1, Andrews County, continued production tests through varied chokes from Ellenburger perforations at 11,018-11,320 feet. The 8800-foot Devonian also will be perforated for dual completion. Amerada Petroleum Corporation's Jones 1-A, indicated prolific Devonian strike for Gaines County was milling on retainer. In Crane County, Magnolia Petroleum Company's Tucker 1-B, 2¾ miles northwest of the McKee pool, was testing pressure buildup after showing for a small oil well from Basal Simpson, or Waddell, perforations at 5789-5809 feet. The Texas Company's Phillips 1, Borden County isolated strike that indicated 10 barrels daily before deepening to water, was repairing split pipe after a 260-quart nitro shot at 3143-3207 feet. Stanolind Oil & Gas Company's Scharbauer 3-Q, with 2 promising oil zones in the Clear Fork that may result in the drilling of twin wells in the Goldsmith field, was drilling shaley-lime at 7660 feet.

Pecos County: Texas' Martin 1, C SW NE T&St.L.Ry. 14, Block 146, expanded the Fort Stockton field 1-1/6 miles southeast in flowing 52 barrels of 29.6-gravity oil with gas-oil ratio of 1817/1, through 7/64-inch choke after nitro shot in Yates sand at 2871-2955 feet. Lion Oil Company's Eaton 1, T.I.&M. Co. Sect. 542 and 2¼ miles southwest, was drilling lime at 3255 feet and below the water table for the field. Bryce McCandless et al's Cordova-Atlantic 1-111, C SE NW H&GN Ry. 111, Blk. 11, Ellenburger prospect for the Owego area, recovered 250 feet of oil-cut mud and 150 feet of free oil from Clear Fork at 3058-3130 feet, and was idle for repairs at 3190 feet.

Natural Gasoline Shows Its First Downward Trend

June production of natural gasoline and allied products showed a downward trend for the first time in a number of months, with a daily average of 12,993,000 gallons compared with 13,151,000 gallons in May, the Bureau of Mines' monthly report shows.

Total production for the first half of the year was 2,357,251,000 gallons, compared with 2,004,567,000 gallons for the same period in 1944, a daily average of 13,023,000 gallons against 11,014,000 gallons.

Production during June included 183,309,000 gallons of natural gasoline against 187,951,000 gallons in May; 32,320,000 gallons of natural gasoline mixture against 32,935,000 gallons; 34,113,000 gallons of raw condensate against 36,563,000 gallons; 19,571,000 gallons of commercial butane-propane mixture against 21,856,000 gallons; 32,301,000 gallons of normal butane against 35,991,000 gallons; 21,735,000 gallons of propane against 25,029,000 gallons; 16,090,000 gallons of other liquefied petroleum gases against 17,474,000 gallons; 13,885,000 gallons of iso-butane against 14,374,000 gallons; 12,050,000 gallons iso-pentane against 13,075,000 gallons; 21,181,000 gallons finished gasoline and naphtha against 19,423,000 gallons, and 3,231,000 gallons of other products against 3,124,000 gallons.

Stocks declined more than three percent during the month, it was shown, those at plants and terminals dropping from 107,001,000 to 100,228,000 gallons while at refineries they increased from 97,650,000 to 98,154,000 gallons.

☆ North Texas

Ellenburger Discovery Has Natural Oil, Water Flow

Ellenburger discovery in Northeastern Archer County makes natural flow of oil and water; Young County has oil discovery in Bend lime; important west extension for Madden area, Wichita County, makes steady oil flow; Sivells Bend field has completion in third Strawn pay.

Archer County: Manning-Brown, Inc.'s Nichols 1, northeast corner of ATNCL Sect. 50 and 2¼ miles northeast of the Hull-Silk field, opened a new producing area in flowing 170 barrels of 44-gravity oil in addition to 16 percent water on 10-hour natural test through 12/64-inch choke from perforations in Ellenburger, topped at 5474 feet and drilled to 5543 feet. The company is starting an east offset. This strike is 2½ miles southwest of the Browning sector of the Vogtsberger field, where Ellenburger production has proved erratic in the 5200-foot zone.

Robertson Drilling Company's Richardson 1, Block 14, J. Scott survey and 7½ miles east by south of Megargel, was awaiting official gauge after making a steady oil flow while swabbing down to test Bend perforations at 4702-10 feet. This discovery was plugged back from dry Ellenburger at 5170-5222 feet.

Young County: Kerlyn Oil Company and Phillips Petroleum Company's Bryan 1, NE NW TE&L Co. Sect. 1902 and 2¼ miles west by south of the partnership's Garvey pool in the same horizon, flowed 219 barrels of 43-gravity oil with gas-oil ratio of 710/1 on 12-hour test through 20/64-inch choke. The production is from perforations at 4373-81 feet in Bend, topped at 4373 feet, having plugged back from dry Ellenburger at 5415-5576 feet. Numerous strikes have been made from the Bend and Mississippi in this general area, but all have proved small and subject to rapid water intrusion.

Wichita County: W. H. Hammon and Hanlon & Buchanan, Inc.'s Boone 1, southeast corner of Block 29, Parker-Cowlterd subdivision, extended the Madden field 1⅛ miles west by north in making a steady flow of oil while cleaning itself in pits after drilling plugs from 7-inch pipe at 4171 feet. This outpost entered the K-M-A lime at 4101 feet, or 2 feet high, and is bottomed in Strawn sand at 4210 feet. Intermediate leases will be developed promptly as a 5085-foot failure drilled in 1940 is discounted through having set pipe for production test below the main Strawn sand.

Montague County: Continental Oil Company's Corpening 1, SE NW limestone County School Lands Sect. 6 and north offset to its prolific extension for the Stoneburg-Hildreth area, was drilling shale at 6290 feet after testing dry in conglomerate at 6262-73 feet. This test entered the Bend at 6060 feet, or 139 feet low, and logged dry conglomerate at 6095-6141 feet, which was the source of the oil flow by the extension well. J. A. Chapman et al's Fowler 1-A, ½-mile southwest outpost, was drilling shale at 6010 feet, and is structurally low.

Continental Oil Company's Barron 1, between two Viola flowing wells in the McNutt pool, situated 2½ miles southwest of Bowie, tested salt water in the Viola at 6832-83 feet.

Cooke County: Magnolia Petroleum Company's Dillard 1, northwest offset to the Sivells Bend field discovery, established the third and deepest Strawn pay in flowing 189 barrels oil and 1,500,000 cubic feet of gas initial from sand at 7400-13 feet. This strike will result in the deepening of the Sun Oil Company's Butler 1, abandoned at 7001 feet and the sole failure for the 6-well field.

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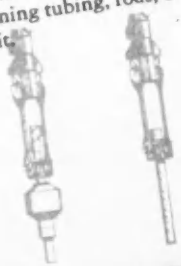

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☆ East Texas

Reworked Cherokee Wildcat To Make Woodbine Pumper

Reworked Cherokee County wildcat will make small pumper in Woodbine; shallow Wilcox prospect in Leon County has oil show; demand for asphalt crude stimulates Paluxy sand wildcatting.

Cherokee County: Tom G. Shaw et al's Bolton-Pure 1, Summerfield area, responded to further testing of Woodbine perforations at 4171-73 feet to indicate a small discovery. The fluid level stands at 2100 feet from surface and swabbing test indicates it will average 15 percent oil and balance salt water with fair volume of gas. Pumping equipment will be installed.

Smackover Tests: Sinclair Prairie Oil Company's Shofner 1, Chapel Hill field, was drilling dry lime at 12,253 feet and presumably was in the Buckner. Phillips Petroleum Company's Englander 1, 3½ miles southwest of its South Tyler field discovery, was making slow progress in drilling sandy-shale at 12,480 feet. In Red River County, the Tex Harvey Oil Company's York 1 was scheduled to perforate pipe set at 8120 feet in Smackover, topped at 7879 feet.

Navarro County: Lyman T. Davis et al's Black 1, B. G. Balthrope survey and near the discovery gasser in the Kernes area, is rated at 65 million cubic feet daily from Woodbine perforations at 3011-26 feet.

Manziel Field: Magnolia Petroleum Company's Malone-Taylor 1, originally completed in the 6300-foot Paluxy, was bottomed at 8802 feet in hard sand, with pipe scheduled to be set on bottom for production test of fair to good porosity in the Pittsburg zone at 8758-70, 8780-85 and 8791-92 feet.

Leon County: Claude Bell's Rexreed 1, Thomas Garner survey, Flynn area, will set pipe for production test of oil show in sand at 988-1003 feet, having entered the Wilcox series at 944 feet.

Shell Oil Company and Lone Star Producing Company's Tandy 1, initial deep test for the Buffalo gas field, logged 718 feet of barren Travis Peak in drilling to 10,802 feet, and has set pipe at 5836 feet to try for completion in the 5600-foot Woodbine.

Wood County: Shell Oil Company's Blalock 2-A, offsetting Paluxy production on the east side of the Quitman field, emphasized sub-Clarksville sand production possibilities of the area in recovering 450 feet of rotary fluid and 750 feet of 24-gravity free oil when tester was used at 3990-4031 feet. The test was drilling Georgetown lime at 5810 feet.

☆ East Texas Border

Harrison, Marion Counties Given Four New Wildcats

Four new wildcats staked in active Harrison and Marion counties; San Augustine wildcat watched for gas-distillate production.

Harrison County: Rogers Lacy's B. C. Quinn 1, Vashti Gibbs survey, in the Harleton area, set 5½-inch casing at 6818 feet to test a show of wet gas in the Rodessa. The wildcat may not be carried to the Pettit or Travis Peak as originally scheduled. A core from 6755-67 feet recovered 17 feet of lime with odor of gas and showing of distillate. This is Lacy's third wildcat in the area to indicate gas-distillate production. It is 1 mile south of the Whalen Bros.' Rodessa gas-distillate discovery of last July. Lacy is soon to start another wildcat, Hayman 1, SWc Hayman tract in E. Talley survey, 4 miles southwest of Lacy's Tutle 1, shutin gas-distillate discovery in the Clifton survey. The well is planned for 7000 feet, or Travis Peak. Lacy is also moving 5½-inch casing to a previously abandoned test, Verhalen Nursery Company 1, Aaron Poe survey, northeast of Scottsville. Plans are to cement casing at 6400 feet to test production possibilities of the Pettit zone in the basal Trinity series.

Marion County: Lacy and Allied Oil Company staked Scott 1, wildcat on the north side of Little Cypress Bayou, 3½ miles south and west of Jefferson. The test will be carried to 7500 feet if necessary.

Frank Hood's Lizzie Henderson 1, R. Bennington survey, squeezed perforations from 6665-77 feet, which tested a show of oil and gas but failed to kick off when acidized, and is reperforating, still in the Lower Pettit.

Jefferson Oil & Gasoline Company's DeWare et al 1, R. Bennington survey, is still testing at total depth of 7500 feet. Latest test recorded a flow of 144 barrels of 41.6-gravity oil on 3/8-inch choke, with a gas-oil ratio of 19,500/1.

Jefferson Oil & Gas Company's M. J. Whelan Estate 1, Thomas Gillespie survey, is drilling below 5864 feet.

Stewart's Company's Brown Estate 1, wildcat in J. Watkins survey, is drilling below 6710 feet.

San Augustine County: M. E. Davis' wildcat C. Thomas 1, William B. Horn survey, cored 9105-23 feet and is reported to have recovered 3 feet of sand showing oil in Travis Peak. Previous shows of gas-distillate were logged from 9095-9134 feet. Coring continues below 9300 feet. Casing probably will be cemented around 9500 feet for production test. Considerable leasing is reported in the county.

Shelby County: M. E. Davis' Pickering Lumber Company 1, W. J. Brittian survey, is preparing to test after recementing casing at 6688 feet. Total depth is 7500 feet.

Humble Oil & Refining Company's Pickering Lumber Company 1, S. Francois survey, Huxley sector, is drilling in shale and lime below 10,451 feet in the Cotton Valley. The company plans to go to 11,500 feet to the Smackover lime.

Nacogdoches County: Magnolia Petroleum Company's W. L. Harrell 1, W. Wray survey, is drilling below 6554 feet in shale and lime.

Panola County: Feazel & Kensey's Cartwright 1, W. Morris survey, is drilling below 5075 feet.

Lucas & Cullins' G. T. Hudman 1, Elizabeth White survey, is drilling below 6888 feet. A core from 6345-62 feet recovered 4 feet of sandy lime with slight odor of gas.

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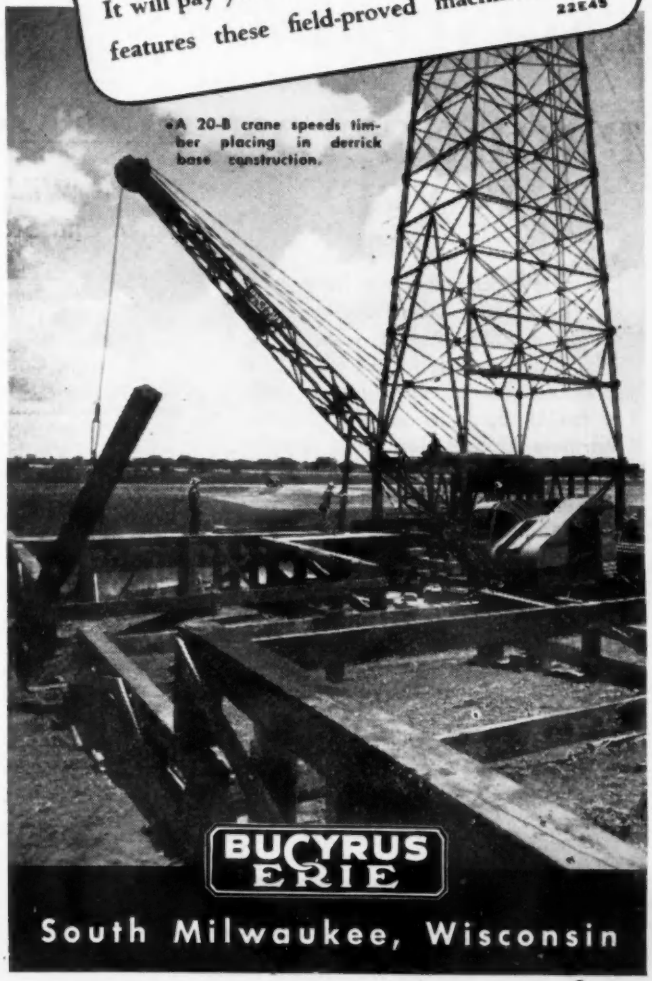

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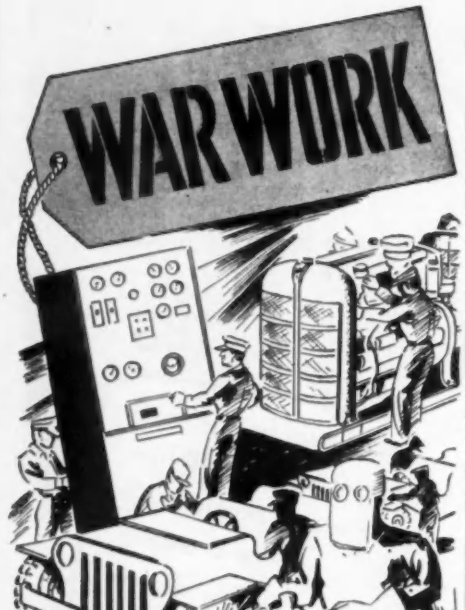

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ENGINE DIVISION—4516 HARRISBURG BLVD.—HOUSTON 3, TEXAS

Johnson et al 1, Messer Fain survey, is drilling below 5630 feet.

W. H. Mitchell's Frost Lumber Company 1, C. F. Hull survey, is drilling at 7185 feet. A 20-minute drill-stem of the Upper Pettit recovered mud, indicated a slight blow but no shows. A core from 6299-6311 feet recovered 12 feet of sandy lime.

☆ South Central Texas

Continental to Drill New Wildcat in Bastrop County

Continental to drill new wildcat in Bastrop County; test near Cistern coring in Edwards Lime; The Texas Company plans new Zavala County test.

Bastrop County: Continental Oil Company has staked a wildcat test 6 miles north of Cistern. It is the Frank Rundus 1 in the William Medford League.

About 2 miles northeast of the new location, Continental's Malina 1 was coring in Edwards Lime at 7234 feet. Only a slight show of gas has been logged.

Zavala County: The Texas Company is preparing to drill a new test in the Leona River area. Location has been spotted for the company's George W. West 3 in AB&M survey, Sect. 49.

Gonzales County: Quintana Petroleum Company's Anna Spahn 1, scheduled 14,000-foot wildcat test 4 miles northwest of Gonzales, was drilling below 5100 feet in sandy shale.

Lee County: Seaboard Oil Company of Delaware is drilling on Paul Hendrick 1, wildcat 8 miles north of Paige. The test now is below 2000 feet in shale.

☆ Southwest Texas

Shallow Wildcats Located in Duval and Starr Counties

Shallow wildcat tests staked in Duval and Starr counties; Mirando sand test near Freer is failure; Southland field has new producer.

Jim Hogg County: A shallow wildcat has been staked by Texon Royalty Company and Drilling & Exploration Company 19 miles southwest of Hebbronville just east of the Jim Hogg-Zapata County line. It is the Hector Vela 2 in the El Petote Grant.

Duval County: Bennett Brothers Drilling Company's J. F. Welder 1, wildcat 3 miles northeast of Freer, has been abandoned at 2757 feet with the Mirando being topped at 2700 feet.

In the South Bruni field, Tom Graham and Lucey Petroleum Company's Bruni Estate 3-A jetted 11 barrels of net oil, 40 percent water, from open hole at 1805-07 feet.

Another producer for the Southland field is Hiawatha Oil & Gas Company's Southland Life Insurance Company 38. The well gauged 196 barrels of 40.9-gravity oil daily through open choke from sand topped at 3996 feet.

Starr County: Billstrom & Armstrong of Rio Grande City have staked a 1300-foot wildcat test 12 miles northwest of Rio Grande City as their Mary M. Edgerton 1 in Porcion 80.

☆ Lower Texas Coast

New Area Is Being Opened Southwest of Hobson Field

New producing area seen in Karnes County; wildcat locations spotted in Lavaca, Bee, and San Patricio counties; activity in Willamar field boosted.

Karnes County: Seaboard Oil Corporation of Delaware apparently is opening a new producing area 7 miles west of Karnes City and 2 miles southwest of the Hobson field. The company's E. N. Hysaw 1-A recovered 2020 feet of pipe line oil on a drill-stem test at 3972-77 feet and 5½-inch casing was cemented on bottom at 3982 feet. Operator now is perforating for a completion attempt.

In this same area, Seaboard staked E. N. Hysaw 2-A as a southeast offset to the discovery well.

Lavaca County: George W. Strake and Tide Water Associated Oil Company have located a wildcat 3½ miles north of Sublime townsite. It is the L. C. Wolfsdorff 1, about 2 miles north of the Sublime discovery well.

Bee County: Ashland Oil & Refining Company has staked Mary Zowarka 1, wlidcat in Bee County School Land survey.

Goliad County: Ginther, Warren & Ginther of Houston are moving in material for a wildcat 9 miles southeast of Goliad. It is the Carrie Wood et al 3, George Villa survey.

Fayette County: Continental Oil Company still is testing A. Derry 1, northeast offset to the discovery well in the Arnim field. The Derry 1 bottoms at 2059 feet and is being completed on pump.

The company's Will Bilton 1, southwest offset to the Arnim field discovery well, is coring below 2034 feet for the discovery sand.

Two miles north of Swiss Alps, M. E. Davis has staked C. M. Janda 1, wildcat in the Fayette County School Land survey.

Willacy County: Activity in the Willamar field continues to show an increase. Pan American Production Company recently staked 5 new locations.

Humble's Sauz Ranch-Mulatos Pastures 16, at Willamar, flowed 175 barrels of 30-gravity oil daily through a 3/16-inch choke from 7890-7913 feet.

San Patricio County: Southern Minerals Corporation is preparing to drill an important 7500-foot wildcat 2 miles west of Ingleside. It is the A. J. Wheeler 1 in the T. T. Williamson survey.

Texas Senator to Attend First FPC Gas Hearing

Senator T. C. Chaddick, chairman of the Texas Senate committee named to investigate Texas gas operations, plans to attend the Federal Power Commission hearing set for September 18 in Kansas City. The senator has not called a meeting of his committee although plans for such meetings were announced first for August and then for September.

Other members of the committee are not too sympathetic to the crusade which Chaddick has advocated, a crusade which he said was inspired by Dr. E. P. Schoch, University of Texas chemist, who has been outspoken in his criticism of exportation of Texas gas.

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☆ Upper Texas Coast

Pinehurst Field Extension Well Is Being Completed

Major extension well being completed in Pinehurst field; Wilcox sand discovery seen near Chapel Hill; Hamman flank well still testing; wildcat tests in Tyler and Harris counties are failures.

Montgomery County: Pan American Production Company is making a dual sand completion in J. W. Winslow 1, major northeast extension well in the Pinehurst field. Operator will complete in gas-condensate sands at 10,985-11,005 feet and 10,325-345 feet. This outpost is about 1½ miles southwest of the nearest production in the Lake Creek field.

Washington County: Attempts are being made to open a new Wilcox sand producing area 4 miles north of Chapel Hill at Rutledge & Clark's Strzelecki 1, E. R. Miller survey. Drilled to 7501 feet, operators set 5½-inch casing at 7257 feet to test 3 zones in the Wilcox.

Matagorda County: A new completion test is being made at Union Oil Company of California's Elsie Richers 1, deep east flank well in the Hamman field. A previous test at 10,720-744 feet flowed oil and mostly salt water. A test at 10,798-807 feet also showed salt water.

Colorado County: Cities Service Oil Company's John Schobal 1, northeast extension test in the Columbus field, still is trying for completion as an oil producer from perforations at 7857-61 feet. A previous test at 7859-63 feet showed oil and salt water.

Skelly Oil Company has staked a second test in the field recently opened by Skelly & Warren's Hymel 1, about 9 miles southwest of Columbus. It is the Clara Bertheld 1, Richard Dowdy survey.

Fort Bend County: British-American Oil Producing Company's Ed Hurta et al 2, Needville field, has made dual sand completion. In the gas sand at 5732-40 feet the well flowed dry gas, and in perforations at 5910-19 feet gauged 144 barrels of 28-gravity oil daily.

Newton County: Humble has spudded a wildcat 12½ miles southeast of Call. The company's E. C. Hankamer 1 is now drilling below 1500 feet in sandy shale.

Tyler County: General Crude Oil Company's G. C. Mattauer 1, wildcat 5 miles east of Rockland, has been abandoned at 3515 feet.

Spacing Permit Sought

Gulf Oil Corporation has applied to the Oklahoma Corporation Commission for 20-acre well spacing in the Cheyarha oil pool of Seminole County. Present pattern is the 20-acre unit but the company apparently seeks to make it official. With the revocation of PAW spacing orders it is expected that other pools in Seminole, Okfuskee and Hughes areas which have been developed under 40-acre spacing will now be drilled up on 20-acre units.

☆ South Louisiana

Final Gauge Is Made On Iberville Parish Wildcat

Final gauge made on Iberville Parish wildcat oiler; well completed in Napoleonville extension area; 2 wildcats active in Cameron Parish; South Thornwell extension area receives new location.

Iberville Parish: Final completion has been made on Noble & Baker's W. E. Caldwell 1, discovery on the south flank of the St. Gabriel field. After several attempts to squeeze off the water flow, operators reperforated in the Marginulina sand at 9210-14 feet and the well flowed about 235 barrels of fluid daily, 115 barrels of 43-gravity oil, through an 11/64-inch choke. Tubing pressure was 1200 pounds, casing pressure 500 pounds with the gas-oil ratio 3053/1. This well

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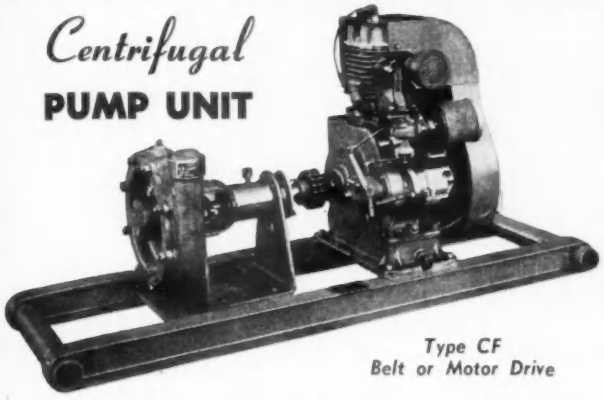

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crossed a fault and logged sand at 9181-9220 feet.

Assumption Parish: A new producer for the northwest extension area of the Napoleonville field has been recorded at Shell Oil Company's Dugas-LeBlanc 3-A. The well flowed a potential of 312 barrels of 39.2-gravity oil daily through a 9/64-inch choke from perforations at 6877-86 feet. Tubing pressure was 1280 pounds. The hole bottoms at 6905 feet in a sidetracked hole.

Cameron Parish: Two wildcats are active in this area. Continental & Yegua's A. Dobbertine 2, 9-15s-14w, Johnson Bayou sector, is coring below 12,700 feet in sand.

Continental's State-Calcasieu Lake 3, in Calcasieu Lake, is drilling below 4425 feet in shale and sand.

Acadia Parish: Irwin-Hudson et al of Houston have completed their first well in the Egan field. The operators' Houssiere-Latreille 1-B flowed 145 barrels of 38.5-gravity oil daily through a ⅛-inch choke from perforations at 10,076-096 feet. The operators have 2 other tests active in the field.

Allen Parish: Humble Oil & Refining Company's Mrs. J. A. Bel 1-B, wildcat in the Oberlin area, was drilling below 9615 feet in sandy shale.

Jefferson Parish: Deepest active test in South Louisiana is The Texas Company's State 1, in Barataria Bay. This test now is below 13,365 feet in hard shale.

Jeff Davis Parish: Cities Service Oil Company is preparing to drill a new test in the South Thornwell extension area, recently opened by the company's D. J. Benoist 2. The new test is the J. R. Prather 1, about ½ mile south of the Benoit 2.

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☆ North Louisiana

Richland Parish Receives Third Oil-Producing Area

Richland Parish gets third oil area; Delhi and Big Creek extensions testing; important Bossier Parish outpost coring in Cotton Valley; staking of 3 wildcats accelerates activity; failure reported.

Richland Parish: The third oil producing area this year for the parish was opened as R. J. Caraway's Bryant 1, C SE NW 35-17n-8e, 3½ miles southeast of the Delhi field and northeast of Big Creek production, was reported flowing oil from perforations between 3148-65 feet, no gauge available. Well is shut in for building of tanks. Total depth is 3303 feet in shale.

James E. Kemp and R. J. Caraway's Snyder 1, C SW NE 24-17n-9e, 1½-mile east extension of the Delhi field, swabbed with showing of oil after perforating from 3364-79 feet in the Tuscaloosa. Gas was tested in perforations from 3310-20 feet, which were squeezed. Sand showing oil was logged from 3350-3405 feet. Total depth is 3563 feet.

The Big Creek field has 2 possibilities for extension. Roy Fisher et al's W. M. Spruel 1, 4-16n-8e, may extend the field 1 mile south and ¼ mile east. The well kicked off after swab was run 5 times and flowed 5 to 7 barrels of 51.8-gravity oil during a 2-hour test, from perforations between 2992-3008 feet. Previously the well had seemed unlikely to make production. The well is shut in, total depth 3237 feet, to erect separator and build tanks.

Bering Oil Company's R. W. Price 1, 5-16n-8e, logged sand with good showing of oil and will extend production in the field westward if the well makes commercial production. The sand was reported topped at 2940 feet, and saturated sand was recovered on a core from 2950-64 feet. Electrical survey was run at 3100 feet, where casing may be cemented for production test.

H. W. Todd et al's wildcat, Greer Estate 1, NE SW 13-16n-7e, cored 3 times between 2936-71 feet, recovering shale with no showings and continued drilling.

Bossier Parish: Barnsdall Oil Company-Sohio Petroleum Company's Padgett-Bundy 1, C NW SE 17-20n-12w, 1½-mile extension for the Benton field, is coring at 8426 feet and looking for the top of Davis sand in the Cotton Valley. Gas and distillate production were logged in the Cotton Valley "D" and the Bodcaw sands, but operators will drill to lower horizons before testing.

Grady H. Vaughn is drilling below 5605 feet in shale in Katie Odom Padgett 1, C SW NE 1-20n-13w, 1½ miles northwest of the discovery well in Benton field. The well will seek Cotton Valley production.

H. C. Owens is moving in material and completing pits for Skidmore 1, C SE NE 1-16n-11w, projected deep wildcat near Lake Bistineau.

Red River Parish: E. F. Neely and W. C. Feazel have taken out permit for Lafitte Company 1, C NW SE 24-14n-12w, a proposed 3000-foot test, which will get under way immediately.

Caldwell Parish: Shell Oil Company's Louisiana Central Oil & Gas Company

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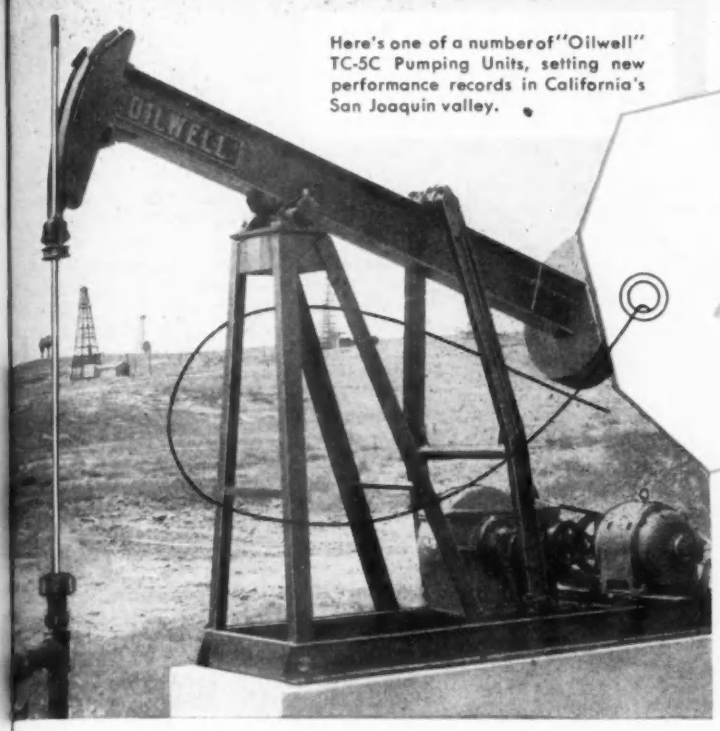

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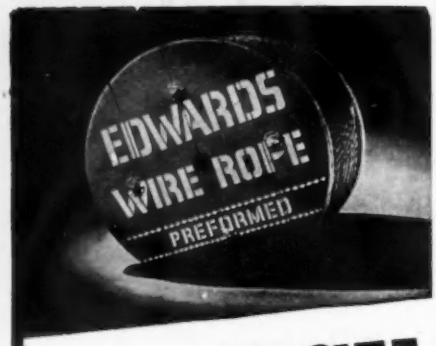

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2, second test in the Vixen area, reconditioned hole to resume drilling after the first drill-stem test from 7427-44 feet failed.

Big West Drilling Company is reported to have a tentative location for a wildcat deep test in 1-11n-3e, immediately south of the Lowe gas field on a 700-acre lease.

Caddo Parish: United Carbon Company's T. R. Grayson Lumber Company 1, 30-19n-15w, wildcat in the Longwood area, is drilling below 4230 feet toward the Travis Peak horizon.

Phillips Petroleum Company has finaled Jodie 1, C SW NE 32-19n-16w, third producer in the Longwood field, for 106 barrels of oil per day through ¼-inch choke on tubing. Well was perforated with 32 shots from 5994-6002 feet. Operators will test further. Total depth is 6305 feet.

West Carroll Parish: The California Company has obtained permit to drill J. E. Hill 1, 2-19n-9e, wildcat test in the extreme southern part of the parish, scheduled to 7000 feet. Operators recently completed Hodge-Hunt Lumber Company 1, C SW NW 6-19n-9e, at total depth of 7039 feet in Smackover.

DeSoto Parish: Charles C. Lowery's Tanner 1, wildcat in 13-10n-11w, is preparing to perforate opposite 3215-45 feet where sands showing gas and distillate were logged. Total depth is 3305 feet.

Grady Vaughn abandoned McGrew 1, C SW SW 34-16n-14w, at 9200 feet without shows.

Jackson Parish: Shell Oil Company's second test in the Chatham area, Tremont Lumber Company 2, 23-15n-1w, is drilling below 7370 feet in shale and lime.

Madison Parish: Sohio Petroleum Company's wildcat, Etheridge 1, 3-14n-12e, is drilling below 2775 feet in shale.

Ouachita Parish: California's Walter Maxey 1, 32-18n-1e, is drilling below 8261 feet.

Claiborne Parish: H. C. Owens' Thomas Crichton 1, NE 1-20n-8w, topped the Travis Peak by electrical survey at 4362 feet and is drilling below 6141 feet in hard, dry sand.

Delta Drilling Company and M. J. Houston's E. K. Gladney 1, recovered 5½ feet of hard, fine-grained sand with no shows in a core from the Gloyd at 4909-15 feet.

SONJ Considering Wage Hike for 36,000 Workers

Eugene Holman, president of Standard Oil Company (New Jersey) announced that representatives of management and labor are discussing wage adjustments up to 15 percent to apply to a 40-hour work week for his company and affiliates. The program is designed to cushion transition from overtime to normal wage schedules and was being considered on a two-point basis including reduction of 48-hour work weeks to 44 on or about September 1, with basic wage increases of five percent with time and one-half for the four hours above the 40, and with further reduction of the work week to not over 40 hours by January 1 with an additional basic pay increase of 10 percent.

The increase will apply not only to plant workers but also to office workers except executives and would affect approximately 36,000 employes.

☆ Arkansas

Patton Gas-Distillate Area May Get Oil Production

Patton gas-distillate area may get oil production; Miller wildcat recovers shale in core; wildcat activity slightly increased.

Miller County: Barnsdall Oil Company recovered 10 feet of shale from a core at 7158-68 feet in W. S. Nichols et al 1, C NE NW 20-18s-28w, and is drilling below 7237 feet, still in the Travis Peak topped at 6655 feet. None of the cores has carried indications of commercial production, and the test probably will go to the Smackover.

Columbia County: Crescent Drilling Company's wildcat, Edna Hawkins 1, C SW NW 8-17s-18w, 2 miles northwest of Mt. Holly production, is drilling below 2320 feet.

Lafayette County: Barnsdall and Sohio Petroleum Company are preparing to perforate the Smackover lime at Moore Heirs 1, NW of C NW SE 32-17s-24w, in the Patton field, ½ mile southeast of Tide Water Associated Oil Company's Bendaw 1, NE NW Section 32, about 25 feet higher on structure. Moore Heirs 1 has good indications of oil production; other production in the area is gas and distillate. A 37-minute drill-stem test from 9300-19 feet, using ¼-inch chokes, recovered 1500 feet of 41-gravity oil with a 2000-foot water cushion.

White County: Lion Oil Refining Company's Nalley 1, SE NE 33-8n-7w, is drilling below 4771 feet, but has not reported any shows.

Ouachita County: McAlester Fuel Oil Company's Charles Wesson 1, C NE NE SW 24-15s-19w, is drilling below 3010 feet.

Union Conuty: R. C. Wallingsford's Duke 1, C SW NE NW 13-18s-13w, is waiting on cement at 2285 feet, after setting 5½-inch pipe at 2273 feet.

Arkansas County: C. E. Osborn's wildcat, Stuttgart-Price 1, C NE SW 16-2s-3w, is rigging up. The test is in the Casscoe area on the north flank of the southeast Arkansas Basin.

☆ Mississippi

Prospect in Cary Field Is Hampered by Salt Water

Salt water hampers completion of British-American's prospect in Cary field; Brookhaven well in Lincoln County reports high quality oil in test; Eucutta operations active.

Sharkey County: British-American Oil Producing Company's F. B. Houston Estate 3, SEc 15-11n-7w, old Cary field, which was held up last spring by high water, is having considerable trouble with salt water although oil production on test continues good. The well was drilled to 8545 feet, but encountered nothing encouraging in the lower horizons and was plugged back to gas rock section where good shows had been tested. Casing was perforated in that horizon with 24 shots between 3272-74

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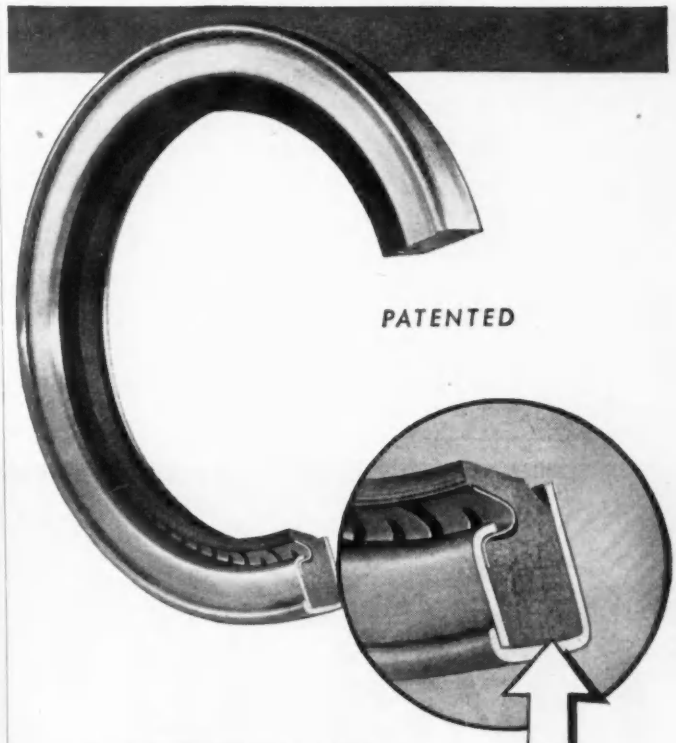

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feet and the well swabbed in. A flow of 400 barrels of fluid per day was recorded, but 50 percent was salt water. Testing continues.

Lincoln County: Roesser & Pendleton's W. L. Case 1, SEc 8-7n-7e, first prospect to be drilled in the Brookhaven field in some time, reported high gravity oil in a test of the Marine Tuscaloosa sand section below 10,000 feet. After cores revealed 5 feet of saturated sand, casing was perforated at 10,238-68 feet and the well started flowing at a rate of 240 barrels per day, ½ of which was salt water. Perforations were squeezed out and after reperforating at 10,238-60 feet a drill-stem test on ¼-inch chokes produced 64 barrels of fluid in 6½ hours with only 15 percent water. Gravity of the oil was 37. Testing continues in the effort to increase production.

Warren County: National Associated Petroleum Company's Jeff Davis Heirs 1-A, SEc 23-14n-1e, is drilling at 6580 feet in clay. The hole was tested extensively in the Wilcox horizon but no shows were recovered. Charles H. Osmond's Anderson Tulley Lumber Company 1, NWc 43-13n-3e, only other prospect in the county, is moving in material and will be rigging up shortly.

Wayne County: Gulf Refining Company's Mrs. W. J. Clark 1, SEc 2-9n-9w, Eucutta field, is preparing to complete after swabbing an estimated 75 barrels a day. The well was perforated at 5226-42 feet in the Eutaw with packer set at 5190 feet and well swabbed in. Humble Oil & Refining Company's G.M.&O. Ry. C-1, NEc 13-9n-9w, Eucutta area, is installing pump after perforating at 5180-86 feet in the Eutaw. Hole is bottomed at 5238 feet.

Lyons & Prentiss' T. F. Reynolds 4, NEc SW NW 18-9n-8w, Eucutta, is preparing to go on pump after a successful swab operation from perforations between 5258-63 feet. Considerable salt water was encountered from previous drill-stem tests but efforts to squeeze it out were apparently successful. Magnolia Petroleum Company's W. W. Reynolds 3, SEc 18-9n-8w, same field, is also having trouble with salt water. The Eutaw was perforated at 5188-92 feet and oil with only a small amount of sediment was swabbed, but when the well was put on the pump production went entirely to salt water. At the present the well is pumping about 5 barrels of fluid an hour, of which 34 percent is salt water. Drillers are trying to squeeze out salt water. Tide Water Associated Oil Company's J. S. Wheeless 3, SEc 12-9n-9w, Eucutta, is installing pump after reaching 5254 feet and setting casing.

Stone County: The Superior Oil Company's Wilbe Lumber Company 1, SE SE 20-3s-10w, is drilling below 8249 feet with no shows indicated. Wilcox zone was cored extensively below 2820 feet, and cores taken below 8200 feet recovered sand and shale with showings of salt water. Harry I. Morgan's G. A. Breland, C NW NW 26-2s-11w, Tuscaloosa test, has completed rigging up.

Lamar County: Gulf Refining Company's Jonathan Davis 1, SEc NW SE 7-1n-16w, Baxterville field, is testing after recovering low-gravity oil from a test of the Massive sand. Hole was perforated at 8790-8808 feet and with packer set at 8770 feet fluid rose to top in 11 minutes. In its initial test the well flowed 12.7-gravity oil at a rate of 12 barrels per hour. Gulf's W. E. Davis 1, NWc 7-1n-16w, Baxterville, is drilling below 8538 feet in side track hole after twisting off several stands of drill stem at 9755 feet. Before the trouble came up the well had tested good shows of porous gas-condensate sand in the Tuscaloosa horizon below 7790 feet and porous sand saturated with heavy black oil in cores below 8700 feet.

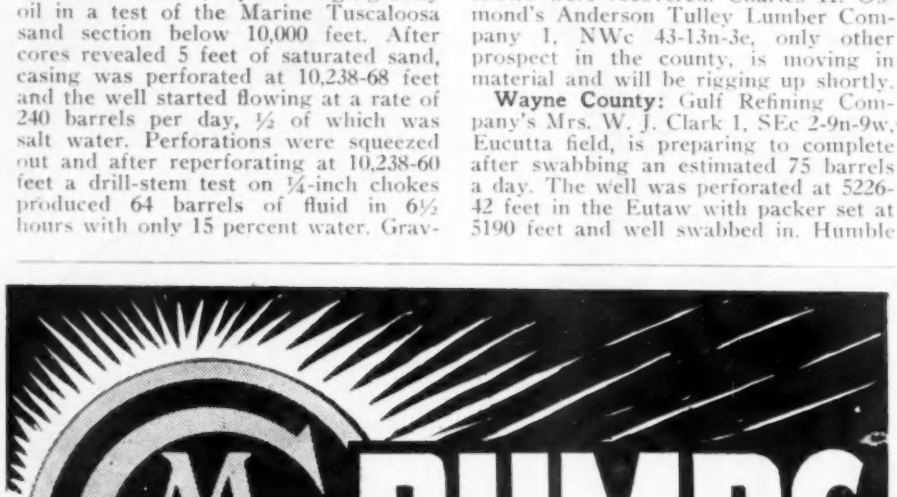
Adams County: The California Company's A. M. Ratcliffe 5, 68-7n-1w, Cranfield field, flowed 274 barrels of oil per day from perforations opposite the Massive sand at 10,280-320 feet. Gas-oil ratio is 1900-1 and gravity of the oil is 37.1. California's Ella G. Lees 4, 29-7n-1w, is drilling below 10,328 feet in the Massive without reporting any shows so far, while the Ella G. Lees 7, in the same section is drilling below 10,129 feet with no shows reported.

Texas Hearing Set

The Texas Railroad Commission will hold a hearing on September 19 at Austin to consider the application of the Plymouth Oil Company to install a pressure maintenance program in the East White Point field, San Patricio County, by injecting recompressed residue gas into the Brigham sand.

Accountants to Meet

The annual fellowship meeting of the Petroleum Accountants Society of Oklahoma will be held at the Oaks Country Club, Oklahoma City, September 14.



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☆ Alabama

East Gilbertown Discovery Offset Flows from Chalk

North offset to East Gilbertown discovery flows oil from Chalk; Washington County wildcat to test showing in Sparta.

Choctaw County: The Carter Oil Company's Caroline Moseley 1, C SW SE NW 5-10n-3w, north offset to the East Gilbertown discovery Sam Allman 1, showed possibility of getting a shallower pay in the field. The well flowed oil into pits after drilling soft Chalk from 2658-93 feet, overflowed pits, and continued to flow oil after being shut down. Two subsequent drill-stem tests failed. Drillers plan to continue to the Eutaw sand, and are now coring from 3259-69 feet.

Hunt Oil Company's Robert Land 5, C SE NE 31-11n-4w, was completed for 27 barrels of 19-gravity oil per day on pump. Hunt's Boney 4, C SW NW 32-11n-4w, is pumping 24 barrels of 19-gravity oil daily, total depth 3593 feet, plugged back to 2625 feet.

Clarke County: The California Company's White City Plantation Company 1, SWc 6-7n-1e, is shut down waiting on orders after bottoming at 4010 feet. Massive sand was topped at 3716 feet and cores taken from 3720-35 feet recovered only sand saturated with salt water.

Approximately 125,000 acres in Clarke and Choctaw Counties have been leased from the Scotch Lumber Company for one of the major oil companies.

Washington County: Wayne Refining Company's Willie Mitchell 1, NW NE 12-8s-3w, plugged back and cemented 7-inch casing at 1200 feet from a total depth of 5525 feet, and is preparing to test showings of oil in the Sparta horizon where reports indicated sidewall cores showed good production possibility. No showings were logged in lower horizons.

Wilcox County: Southern Natural Gas Company is drilling below 6290 feet in G. W. Morgan 1, C SE SE SW 32-12n-5e, but has logged no showings indicating oil possibilities.

Conecuh County: Hunt Oil Company's T. R. Miller Mill Company 4, C SW SW 13-4n-11e, is drilling below 2740 feet.

Sumter County: J. H. Gwin's Allison Lumber Company 1, C SE SW 36-19n-4w, is shut down for orders at total depth of 2616 feet. Lower Cretaceous was topped at 2605 feet.

Florida

The Pure Oil Company is drilling in surface hole in International Paper Company 2, 31-1s-10w, second wildcat test for Calhoun County. The company recently abandoned Well 1, 25-1s-11w.

Monroe County: O. D. Robinson has recovered tools from a long fishing job in State 1, NEc NW¼ 29-59s-40e, and is reconditioning hole and running casing. Total depth is 6197 feet.

Highlands County: Humble Oil & Refining Company's G. C. Carleton Estate 1, C SW NE 34-38s-29e, has reached 10,674 feet with no shows indicated. Packer failed in a drill-stem test at that level, and previous tests recovered only salt water.

Charlotte County: Humble's Lowes-Treadwell 1-A, C SW NE 17-42s-23e, is drilling below 9114 feet with no shows reported.

Collier County: Humble's Sunniland field test, Gulf Coast Realties 7, C SW NE 17-48s-30e, is drilling in dolomite and anhydrite below 9636 feet.

Georgia

Kerlyn Oil Company's wildcat Cecil Pate 1, C SE¼ Lot 144, 13th Land District, Clinch County, is getting under way. This is the first test for Georgia since Callaphor Manufacturing Company's well was abandoned in Laurens County in July.

Purchasing Agents to Meet

The first fall meeting of the Purchasing Agents Association of Tulsa will be held September 11, with Paul V. McGivern, district representative for Baker Oil Tools, Inc., as host.

☆ California

Los Angeles Basin Wells Testing Below 10,000 Feet

Two Los Angeles Basin wells testing for production below 10,000 feet; third operator starts wildcat in highly-regarded Bandini area; 4 more wells announced for Cymric field; Imperial Valley wildcatting campaign comes to a close, a falure; Superior to test showings in Fresno County wildcat.

Los Angeles County: Chief interest in the Los Angeles Basin is centered in The Ohio Oil Company's wildcat in the Gardena area and Standard Oil Company of California's exploratory venture in the Leffingwell area. Ohio has cemented a 7-inch combination string at 10,593 feet in Gardena Community 1 in

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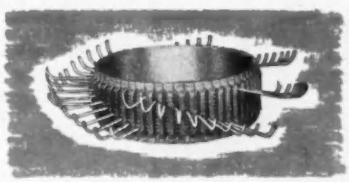

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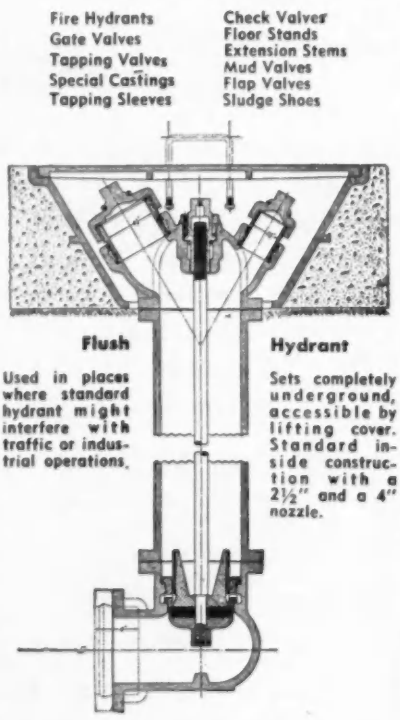

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24-3s-14w, which showed some oil. Operator is cleaning out for a production test. Standard has set 7-inch casing at 10,145 feet in its Leffingwell wildcat, Lewis Community 1, in 11-3s-11w, and is also cleaning out to test. Total depth is 10,292 feet.

The tests are of interest because oil has never been found in quantity below 9000 feet in the Los Angeles Basin. Small producers have been obtained below 10,000 feet at Buena Park, and at Long Beach where several wells are bottomed in the De Soto zone below 10,000 feet. A wildcat well immediately outside the producing area of Buena Park penetrated several hundred feet of Eocene sands with very low permeabilities. Most of the Miocene production in the Basin has thus far been obtained from the uppermost Miocene. In 2 instances production has been obtained from the Middle Miocene—at Puente and Inglewood.

Chanslor-Canfield Midway Oil Company plans a wildcat in 21-2s-12w, Bandini area, and thus becomes the third company to be actively interested in that area. Location is about 1 mile south of the test well of Richfield Oil Corporation, which recently installed heavy equipment for very deep drilling. Richfield is presently fishing for drill pipe at 4682 feet. Third wildcatter in this area is C. G. Willis, whose Pansini 1 in 23-2s-12w is prospecting at 7300 feet.

Imperial County: Amerada Petroleum Corporation's Timken 1, El Centro area of the Imperial Valley, has been abandoned at 7325 feet, marking the last of a series of wildcats drilled in that part of California in the last 2 years. Deepest test was The Texas Company's Grupe-Engebretson 1 near Holtville which was abandoned 3 weeks ago with bottom at 12,313 feet.

Kern County: Development of the recently discovered Anderson sand in the Cymric field is proceeding in orderly fashion. Union Oil Company has completed its second well, Anderson 55-26, in 26-29-21, and has staked locations for 2 other wells on the Anderson lease. Standard of California is drilling 2 wells on its Weston lease and has announced locations for 2 others. A mile northeast, Standard is drilling Fitzgerald 55 in Sect. 24. Union's second producer is currently making 450 barrels of 30.5-gravity oil through an 18/64-inch choke, effective depth 3650 feet.

At Paloma, The Superior Oil Company is about to bring in Anderson 16-35 in 35-31-26, north flank of the field. On a 6-hour flow test the well produced at the rate of 1616 barrels per day through a ⅜-inch choke. The company has spudded Anderson 36-35 ½ mile east. Three outposts are nearing critical depths — Hogan Petroleum's Symons-Two 27-27 in 7-32-27, which is drilling below 10,500 feet; Lloyd Corporation's Houchin 54-34 in 34-31-26, now drilling below 11,440 feet; and Western Gulf's Symons 63-7 in 7-32-27, which has reached 11,300 feet.

Fresno County: Superior's Sample 1 in 25-17s-18e, Lanare area, which was cored to 8532 feet, is testing shutoff on 7⅝-inch casing cemented at 7110 feet. A test will be made of showings logged below 7110 feet.

Contra Costa County: Ardley Petroleum Company has resumed operations in Almond 1 in 31-2n-2w and is drilling below 850 feet.

☆ Michigan

Twelve Permits Granted For Wildcats, Outposts

Twelve of 17 permits approved by Conservation Department for current week call for wildcat or outpost locations to continue predominance of exploratory work in new Michigan operations.

Bay County: W. F. Wild's Wild-State 1, SW NE SW 9-14n-6e, ½ mile north extension test in the Essexville pool, and center of a heated issue over Saginaw Bay front drilling, loomed a failure or small pumper at best. Dundee lime was logged at 2669 feet with a light show at 2864. Drilling was suspended at 2915 with at attempt to acidize the small show into production probable.

The well was structurally low but not too low to produce with adequate porosity. If it fails completely as a commercial well it will soften if not eliminate a controversy over the State Conservation Department's order permitting bay front drilling.

Clare County: Turner Petroleum Company has abandoned Luce 1, S½ NW SW 5-18n-5w, Lincoln Township, 3 miles east of the Freeman oil field, after failing to get results on a plugback job and acid treatment.

Promising Structures to Be Drilled in Southern Chile

After two years of surveying by Corporacion de Fomento, official agency of the government of Chile, several structures were located, and it was decided that they were promising enough to drill. Drilling equipment and personnel arrived in Chile during July, and the rigs are now being set up, one cable tool outfit in the Mina Rica structure, Peninsula Brunswick, and the rotary on the Springhill structure, in Isla Grande, Tierra del Fuego. Both wells are expected to be drilling by September 10.

The cable tool outfit belongs to Corporacion de Fomento, and the rotary to Livermore Corporation, which also is furnishing the drilling personnel.

Both wells are in the state of Magallanes, where road conditions are very poor. The Mina Rica test is being made first because roads to the more promising structures of Canelos and Rio Grande are still under construction.

Pay Hike Announced

A five percent increase in base pay and a reduction in working hours from 48 to 44 hours a week went into effect September 1 for employes of Interstate Pipe Line Company. The change affects approximately 1200 in Oklahoma, Louisiana, Arkansas, Mississippi, Illinois, Kentucky, Wyoming and Montana. Employes will continue to receive time and one-half pay for the four hours above the 40 hours. Further, the company announced that an additional reduction in working hours to 40 hours will be made on or before January 1, and when this is effected present base pay will be increased another 10 percent for a total pay increase of 15 percent.

☆ Rocky Mountain Area

Colorado Test Is Failure; Rangley Extension Likely

Northwestern Colorado wildcat is failure; Moffat County, Colorado, wildcat showing oil; Rangely field extension nearing completion.

Colorado

Stanolind Oil & Gas Company's Blue 1, SE SW SW 35-6n-96w, wildcat test on the Maybelle structure, Moffat County, northwestern Colorado, found water in the Madison and has been abandoned at a total depth of 3890 feet. A 30-minute drill-stem test at 3731-3817 feet recovered 2330 feet of water and 350 feet of drilling mud.

Approximately 6 miles east and 12 miles south of the Maybelle failure, Frontier Refining Company in its Maudlin Gulch wildcat, Unit 1, NW NE NW 35-4n-95w, proposed Sundance test, tested oil in the Morrison sand. A drill-stem test taken in the Morrison at 6286-6297 feet, open 32 minutes, yielded 360 feet of light oil. Previous tests of the Dakota and Morrison sands recovered only water and drilling mud with a showing of oil. On last report, the well was preparing to core.

Rio Blanco County: Extension of the prolific Rangely field is in prospect with the testing of Wasatch Oil Refining Company-Netwon Oil Company's Gentry 2-D in C SW NE 3-1n-102w. The well penetrated the productive Weber sand 677 feet to a total depth of 6379 feet. It has been swabbing at a 190-barrel per day rate and preparations are now under way to shoot the well.

Wyoming

Sinclair Wyoming Oil Company's Unit 4, NW NW SW 18-28n-92w, in the Crooks Gap field, Fremont County, has been completed as an excellent producer in the Lakota sand. Unit 4 is the third producer in the field. The well drilled into the Lakota at 4912 feet and after drilling to a total depth of 5088 feet was plugged back to 5054 feet for completion. Through open tubing, it flowed at the rate of 3817 barrels of oil in 24 hours.

Socony-Vacuum Announces Pay Increase for 21,000

Effective September 1, a salary increase of 10 percent for approximately 21,000 employes in the non-executive classification, was announced by the Socony-Vacuum Oil Company. The increase affects employes in all domestic operations of the company such as producing, manufacturing, research and marketing.

☆ Canada

Madison Limestone Test Near Calgary Is Planned

Imperial Oil Ltd. and Anglo Canadian Oil Company have joined to drill one of the most important Alberta wildcats of 1945. Their joint test, Imperial-Anglo-Crossfield 1, will be drilled immediately in lsd 9 11-28-2w5, on the crest of a seismograph-indicated dome 20 miles north of Calgary.

The structure is on the east slope of the "Alberta Syncline," trought-like depression flanking the 350-mile-long Alberta Foothills Belt. The syncline area has seen little development in the past.

The test will go to the Madison limestone, expected at between 7500 and 8000 feet .The indicated structure is relatively flat, with gentle dips of the limestone from its crest, comparable to the Plains-type structure.

Bata Petroleums Ltd., developing the Province of Saskatchewan's first large gas field, has drawn another big gas well from the Basal Lower Cretaceous to extend the proven Vera-Unity field another mile southwest, and has started a new venture a mile west and south.

The new success, Bata 9, lsd 6 14-39-23w3, was completed at 2082 feet and set 7-inch casing at 2070 feet. The Lower Cretaceous showed at 1781 feet, with the Basal gas-bearing sand at 2075 feet. On drill-stem test through ¼-inch choke, the sand gave a gas flow of 3,700,000 cubic feet daily with bottom hole flowing pressure 790 pounds, comparable to drill-stem results at Bata Nos. 7 and 8, which showed potential of 30 to 40 million cubic feet daily after gun-perforating of the sand. No. 9 is a mile west of No. 7 and a mile south of No. 8.

A new extension test, Bata 10, has been started in lsd 3 15-39-23w3, a mile west and ¼ mile south of No. 9.

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PAGES 3079 THRU 3098 IN THE COMPOSITE CATALOG

EXPLORATORY COMPLETIONS

CALIFORNIA WILDCATS

Imperial County—Failure: Amerada's Timken 1, 28-16s-14e, El Centro area, abnd 7323 ft.

Kern County — Failures: Independent Exploration Co.'s Fee 1, 36-27s-28e, Round Mt. area, Vedder 1225 ft, abnd gray sd 1239 ft.

Richfield Oil Corp.'s Smith & Crawford 1, 3-31s-22e, Midway-Sunset area, abnd shale 7000 ft.

Standard of Calif.'s Weston 45-21, 21-29s-29e, N. Edison area, Edison sh 1695 ft, Olcese 2665 ft, Jewett 4192 ft, Pyramid Hills 4358 ft, Bentonite 4484 ft, Vedder 4493 ft, basement 4975 ft, abnd 5004 ft.

Superior's Houchin 27-27, 27-31s-26e, Paloma area, abnd 12,165 ft.

Bradford Bishop's Bradford 14-1, 14-28s-28e, West Round Mt. area, Vedder 2690 ft, abnd gray sd 2955 ft.

Richfield Oil Corp.'s Di Giorgio 3-1, 3-31s-29e, Arvin-Mt. View area, Santa Margarita 5166 ft, Walker 5299 ft, Schist 5306 ft, abnd 5378 ft.

Richfield Oil Corp.'s Tejon D, 15-31, 21-12n-18w, Tejon area, Santa Margarita 3145 ft, oil shows 4733 ft, abnd gray sd 5821 ft.

Superior Oil Co.'s Houchin 27-27, 27-31s-26e, Paloma area, abnd hard shale 12,165 ft.

Texas Co.'s Westpet 21-29, 29-29s-21e, Temblor area, brown shale 1062 ft, abnd 2980 ft.

Los Angeles County—Failure: Dumm Bros. Pet. Corp.'s Olympic 15, 24-1s-13w, Lincoln Park area, abnd 1259 ft.

Solano County—Failures: Shell's Hamburger-Treadwell 1, 36-6n-2e, Duck Slough area, abnd 6300 ft.

Standard of California's Teal Community 1, 27-4n-2w, Suisun area, abnd 6025 ft.

Santa Barbara County — Failure: Whittier Associates' G. Buell 2, 23-7n-32w, Los Alamos area, abnd 995 ft .

CALIFORNIA OUTPOSTS

Fresno County — Helm Extension: General Pet. Corp.'s Witten 75-23, 23-17s-18e, flow 211 bbls 34.4-gr oil, 59,000 gas, 10/64-in, td 8248 ft.

Kern County—Coles Levee Extension: Union Oil Co.'s Kernco 34-12, 12-31s-25e, flow 558 bbls 32-gr oil, 740,000 gas, td 9976 ft.

COLORADO WILDCAT

Moffatt County—Failure: Stanolind's Blue 1, se sw sw 35-6n-96w, Maybelle area, Madison 3415 ft, wtr, abnd 3890 ft.

ILLINOIS WILDCATS

Clinton County — Failure: Wynn & Beck's Wedekemper 1, sw se ne 31-3n-1w, abnd 1477 ft.

Effingham County — Oil Discovery: A. J. Hammer & Kingwood Oil's Fulk 1, sw se sw 13-6n-7e, Cyp 2527-37 ft, pump 52 bbls, td 2577 ft.

Fayette County—Failure: Nat'l Assoc. Pet.'s Smith 1, nw nw sw 15-6n-3e, abnd 2177 ft.

Jefferson County — Failures: Aetna Oil's Watkins 1, ne ne sw 24-2s-1e, abnd 2353 ft.

Texas Co.'s Jefferson O&G 1, nw se se 2-4s-1e, abnd 2990 ft.

E. T. Robinson & Wisconsin's Lang et al 1, nw ne ne 7-4s-3e, abnd 3000 ft.

Lawrence County—Failure: Hayes Drlg. & Central Pipe Line's No. 1, nw sw sw 13-2n-13w, abnd 2532 ft.

White County—Oil Discovery: Homer Luttrell et al's Questell 1, ne ne nw 36-6s-9e, Tar Springs sd 2296-2308 ft, pump 30 bbls, td 2308 ft.

INDIANA WILDCATS

Daviess County—Failure: J. W. Cannon's Baker 1, nw nw nw 35-3n-6w, abnd 663 ft.

Jackson County—Failure: Aetna Oil's Turkham 1, sw nw nw 6-4n-5e, abnd 864 ft.

Posey County—Failures: E. T. Wix's Miller 1, nw se sw 26-6s-12w, abnd 2791 ft.

Milo B. Siegel's Crunk 1, nw nw ne 30-7s-12w, abnd 2779 ft.

Vanderburg County—Failure: Sun's Adcock Unit 1, ne se se 23-7s-11w, abnd 2520 ft.

KANSAS WILDCATS

Barton County—Oil Discovery: Harbar et al Unruh 1, ne ne nw 24-20-15w, Arb 3644-46 ft, flow 240 bbls, ¼-in ch, td 3690 ft.

Ellis County—Failure: Stearns & Vernon's Froelick 1, ne cor 3-13s-16w, Lans 3244 ft, Arb 3637 ft, abnd 3650 ft.

Leavenworth County — Failure: Sloan & Zook's Hill 1, nw cor 15-12s-20e, sand 1075 ft, Miss 1210 ft, abnd 1214 ft.

McPherson County — Failure: Glava O&G Co.'s Borth 1, nw sw sw 29-19s-2w, Miss 2994 ft, Arb 3604 ft, abnd 3640 ft.

Reno County—Failure: H. A. Hershfield's Jones 1, c sw sw 32-22s-10w, Anhy 415 ft, Lans 3277 ft, Arb 3692 ft, abnd 3742 ft.

Rice County—Failure: Bridgeport's Deal 1-B, ne ne nw 31-18s-6w, Lans 2713 ft, Simp 3394 ft, abnd 3508 ft.

Sedgwick County—Oil Discovery: Geo. Fullet et al's Terner Est. 1, nwc sw 22-27s-1w, Lans 2817-28 ft, pump 50 bbls, td 2828 ft.

KENTUCKY WILDCATS

Daviess County—Failure: Sohio's Clark 1, 5-P-28, abnd 1938 ft.

Harden County — Failure: Ill. Mid-Cont.'s White 1, 20-I-38, abnd 1000 ft.

Ohio County—Failure: Sharp et al's Hammer Hrs. 1, 12-I-32, abnd 1275 ft.

SOUTH LOUISIANA WILDCATS

Acadia Parish—Failure: Vincent & Welch, Nicklos Drlg. Co.'s August Leonard 1, 1660 n 1660 e of swc 29-7s-1e, Disc 7230 ft, Hetro 7490 ft, Cibicides 8660 ft, Ortege 8714 ft, sw in perfs, abnd 10,013 ft.

Calcasieu Parish—Failure: Sparta Oil Co.'s Industrial Lbr. Co. 1, 632.5 fr nl 537.5 fr wl nw¼ sw¼ 25-8s-12w, abnd 8005 ft.

Cameron Parish—Failure: Claude F. Morgan's LeBlanc Heirs 1, 2979 e 112 n of swc 31-14s-8w, abnd 9518 ft.

Iberville Parish— S. St. Gabriel Oil Discovery: Noble & Baker's W. E. Caldwell 1, s 18 15 mins w 2000 th n 71° w 400.3 fr nec 52-9s-2e, top pay 9181-9220 ft, orig comp in 11 perf 9191-9211 ft, flow 288.24 bbls, 11% wtr, 3/16-in, wtr increas, reperf 20 shots 9210-14 ft, flow 115 bbls 43-gr oil, 62% wtr, 11/64-in, gor 3053/1, td 9305 ft.

Plaquemines Parish—Failure: Sid W. Richardson's Magnolia Orange Grove 1, 995.14 n 2° 10 mins 30 secs e of cor of lse 600 fr el 600 fr sl on sect 8-18s-26e, sw flow and abnd 12,401 ft.

St. Mary Parish—S. Jeanerette Discovery: Atlantic's Jos. A. Blanchard 1, 3480 n 1650 e of swc 37-13s-9e, perf 24 shots 7476-84 ft, flow 211 bbls 34.6-gr, ⅝-in, gor 478/1, td 8159 ft.

MICHIGAN WILDCATS

Allegan County—Failure: Harris and Fortney's Miller 1, nw sw nw 2-2n-13w, Traverse 1552 ft, abnd 1580 ft.

Antrim County—Failure: Sun's State A-1, n½ se se 36-29n-5w, abnd 4593 ft.

Clare County—Failure: Turner Pet. Co.'s Luce 1, s½ nw sw 5-18n-5w, Dundee li 4042 ft, so 4056 ft, abnd 4085 ft.

MISSOURI WILDCAT

Atchison County—Failure: Dan Short's Rankin 1, sec 9-65n-40w, abnd 1384 ft.

NEW MEXICO WILDCATS

Eddy County — Failure: Malco Refineries (was Richard E. King's) State 1, nw nw se 16-19s-27e, elev 3405 ft, Queen sd 970 ft, San Andres 1735 ft, abnd 2003 ft.

Roosevelt County—Failure: Frank M. Hill-Ole Taylor's Caudell 1-X, 720 nsl 1980 ewl 22-2s-30e, elev 4573 ft, Santa Rosa 590 ft, Rustler 1125 ft, white li 1410 ft, Yates 2166 ft, abnd 3378 ft.

Santa Fe County — Failure: Richfield Oil Corp.'s Federal-University 1, 645 ewl 715 snl 25-14n-11e, elev 7098 ft, granite 2600 ft, abnd in granite 2605 ft.

OKLAHOMA WILDCATS

Caddo County — Failure: Sinclair-Prairie's Hall 1, nw nw se 36-7n-13w, Arb 1260 ft, Pont 1950 ft, abnd 6110 ft.

Carter County—Failure: R. H. Alexander's Fish 2, ne ne ne 10-1s-2w, abnd 868 ft.

Creek County—Failure: P. T. Brown's Brown 1, se sw se 33-15n-9e, Vi 3790 ft, Wx 3843 ft, abnd 3890 ft.

Kingfisher County — Failure: Phillips-Carter's Roffman 1, ne nw 12-15n-5w, Syl 7286 ft, abnd 7286 ft.

McIntosh County — Oil Discovery: Swick-Sherod-Apperson's Well 1, ne se sw 9-9n-14e, Gilc sd 2700-23 ft, flow 14,200,000 gas, rp 855 bbls, td 2723 ft.

Noble County—Failure: J. E. Trigg et al's Cottle 1, sw nw se 8-21n-2w, Vi 5345 ft, 1st Wx 5405 ft, abnd 5490 ft.

Noble County — Oil Discovery: Magnolia's Wollard 1, sw sw sw 34-22n-2w, Btvs 4621-88 ft, flow 275 bbls day, td 4688 ft.

Pottawatomie County—Failure: Texas Co.'s Lee 1, ne ne sw 8-10n-5e, abnd 4784 ft.

WEST CENTRAL TEXAS WILDCATS

Jones County—Failure: Ted Weiner-Jas. C. Robert's Gray 1, sw sw nw sect 25, Deaf & Dumb Asylum Lands, elev 1565 ft, Saddle Creek 1780 ft, Flippen 1840 ft, Cook 1865 ft, abnd 1911 ft.

Shephens County—Failure: Sinclair Prairie's Ackers 1, 330 out of swc J. M. Evans sur A-2157, elev 1223 ft, Bend 3272 ft, Ellenburger 4450 ft, abnd 4530 ft.

Stonewall County—Failure: General Crude Oil Co.'s Bryan 2, 2280 snl 1980 ewl sect 11, Austin & Williams sur 348, elev 1745 ft, abnd 6501 ft.

SOUTHWEST TEXAS WILDCATS

Webb County—Failure: Sid Katz's A. M.

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FOR SALE

■ SURPLUS FOR SALE: One 32 HP Reid Gas Engine. One 25 HP Oilwell gas engine. Two Angle iron and one tubular Steel Derricks for pumping wells. One 25 HP oilfield Boiler. All priced to sell. C. M. Barrington, Santa Anna, Texas.

■ FOR SALE: Wilson Giant Workover rig with: Full water circulating brake rings, chain transmission, powered with WAKU Waukesha Engine, 7¼ x 12 Emsco pump, powered with WAKU Waukesha Engine, 25⅛" A.P.I. Emsco rotary. New 4 sheave McKissick traveling block, 6000# test Cameron blow-out preventer complete with three sets of rams, 7 x 12 tool house. All valves and unions 6000# test where necessary. Rig in A-1 condition and complete with hand tools. For servicing wells to 10,000 feet. Available about 10th of August.

R. V. West
Office Ph. Ch. 4-5591
Res. Ph. K 3-5318
Houston, Texas.

■ FOR SALE: Wilson Giant Drawworks-Powered with 1-GAK Waukesha Engine and full water circulating brake rings. Rig running within 80 miles of Houston, Texas, and may be seen at any time. R. V. West, Office Phone C-45591, Res. Phone K-35318, Houston, Texas.

■ We offer the following FOR SALE:

2—2B 2-200 Turney Draw-works complete with V-Belt Drives, Engine Skids and Hydromatic Brakes. This equipment has just been completely overhauled by Texas Iron Works and performs as good as new. This is an excellent buy for anyone contemplating drilling up to 9000 feet.

1—Wilson Mogul Draw-works complete w/American Automatic Cathead and two 148 HP Waukesha Engines.

1—Gardner-Denver Pump with new WAK Waukesha Engine.

1—7" Kerotest Gate Valve completely overhauled, tested and guaranteed.

1—7" Hughes Gate Valve completely overhauled, tested and guaranteed.

1—7" Merco Nordstrom, 5000-lb. W.O.G. working pressure, flanged, ring joint, worm operated valve.

R-G EQUIPMENT COMPANY, LTD.
1815 Lyons Ave. Telephone C4-6039
Houston 10, Texas

SERVICES

■ Foreign work considered. Complete drilling organization with one 12,000 foot new rig, one 1500 foot new rig, one 6500 foot new rig, one complete small rig suitable for workovers. All collateral equipment. Best of men. Amply financed. Will meet representative any place in U.S.A. for consultation. Address: Box 20, c/o The Oil Weekly, Houston, Texas.

NOTICES

OIL LOANS WANTED

We want good oil loans. We also buy royalties and oil payments.

BAPTIST FOUNDATION
Baptist Bldg. Dallas, Texas

ESTABLISHED GEOLOGIST with broad experience in acquiring early royalty, desires to contact investors interested in scientifically selected royalties in best major company geophysical prospects. References exchanged. Address: Box 15, c/o The Oil Weekly, Houston, Texas.

HELP WANTED

■ Wanted by a consulting geophysical organization: Petroleum Engineers with Hayward Mud-logging experience or its equivalent. Immediate openings in Venezuela. Excellent opportunity for advancement to managerial positions throughout the world. Address: Box 45, c/o The Oil Weekly, Houston, Texas.

■ Engineer-Surveyor (Foreign) to make surveys on concessions from government to establish boundaries, lot selections, right of way, etc. Must speak fluent Spanish and be capable of directing field party composed of natives. Major oil company. Apply P. O. Box 2819, Dallas, Texas.

■ WANTED: Man qualified to prepare maps and supervise the making of maps that are generally used in the Land Department of an Oil Company. Must be able to secure information from county records and other sources for preparation of maps. Should be experienced in making maps used in the Production and Geological Departments. If interested Address: Box 11, c/o The Oil Weekly, Houston, Texas.

■ LAND and LEASE MAN, by progressive established independent oil company, should have some geological and production experience, familiarity with titles and good trading ability and be capable of handling deals to conclusion. Salary and carried interest to right party. Give experience, references, and all details in first letter. Address: Box 9, c/o The Oil Weekly, Houston, Texas.

■ Experienced seismograph Party Chiefs, Computers, Observers and Drillers. Good opportunity for advancement in expanding geophysical company and eventually for foreign service if desired. Address: Box 10, c/o The Oil Weekly, Houston, Texas.

■ HELP WANTED: Gulf Coast District Geologist for expanding independent oil company. Should have wide acquaintance among major companies and be able to do some trading. Position offers good future. Give full personal data, experience, references, and salary desired. Address: Box 7, c/o The Oil Weekly, Houston, Texas.

SITUATIONS WANTED

■ Position Wanted: Drilling and production superintendent with large independent operator desires change. Middle aged, good education, sober; competent and capable of holding important position with large or small company. A-1 references from past and present employers. Thoroughly familiar with deep drilling and production in both Gulf Coast and Mid-Continent areas; also specialize in workovers and handling of old production. Address: Box 1, c/o The Oil Weekly, Houston, Texas.

■ WANTED: Position as Salesman or Sales Engineer for Oil and Gas or Acid Equipment. 15 yrs. experience covering all phases of each. Can offer Ordnance and Industrial References. Will go anywhere in this Country or Foreign. Must have time to give notice. Address: Box 12, c/o The Oil Weekly, Houston, Texas.

■ PILOT-SECRETARY: Commercial pilot with single and multi-engine rating, 0-2400 H.P. Woman with four years flying experience, total 750 hours, 500 cross country, army instrument rating, wishes to combine flying and office work. Address: Box 16, c/o The Oil Weekly, Houston, Texas.

■ HOUSING MANAGER or Supervisor experienced in handling operation and maintenance wants position handling housing requirements. Oil Company experience abroad. Excellent references. Now employed but available to go anywhere. Address: Box 17, c/o The Oil Weekly, Houston, Texas.

■ Gravity meter man nine years experience with major oil company foreign and domestic as operator, technician, computer, supervisor and interpreter—some seismic, torsion balance and magnetometer experience—physics graduate University of Texas would like "permanent" residence work in oil exploration. Address: Box 21, c/o The Oil Weekly, Houston, Texas.

■ Honorably discharged Air Corps Captain, age 34, former attorney and independent producer, experienced land, title, and office administration, available immediately for employment with major company or aggressive independent. Address: Box 18, c/o The Oil Weekly, Houston, Texas.

Bruni Est. 1, 330 fr e&sl 245.2-ac lse and w 245.2 acres of sur 118, abnd 1864 ft.

Zapata County—Failure: George H. Echols' Herlinda T. de Volpe Est. 3, 450 fr nl 1980 fr el 3000-ac lse, Porc 32, blk 60, Cinco de Mayo area, abnd 2039 ft.

LOWER TEXAS COAST WILDCATS

Bee County—Failure: Bridwell Oil Co.'s George A. Ray 4, 1385 fr sly 330 fr el 500-ac lse, Anna Burk sur, abnd 4035 ft.

Brooks County—Failure: Parker & McCune's L. G. Denman 1, 467 nw Palo Blanco crk 300 fr wl blk 2 Jose M. Ynokosa Gr, sect 78, 1254.56-ac lse, abnd 1510 ft.

Jackson County—Failure: Houston Drlg. Corp.'s A. H. Miller 1, 330 fr s&wl 132-ac lse, M. Marquez sur, abnd 5507 ft.

San Patricio County—Gas Discovery: Republic Nat. Gas Co.'s J. B. Hardwick 1, 330 fr swl 120 fr sel blk 48 Welder & Odem sbdn, 465-ac lse, gas well, shutin, td 6992 ft.

UPPER TEXAS COAST WILDCAT

Jefferson County—Gas-Distillate Discovery: Sun's Gilbert Est. 1, 6682.3 fr sl 2316.7 fr wl John Ricord sur, 2576 n of McDaniel's 7580-ft dry hole, 1432.87-ac lse, perf 56 shots 8675-90 ft, flow gas-cond, no gge, shut in 8996 ft.

UPPER TEXAS COAST OUTPOST

Wharton County—Boling N. Flk Extension: Union Oil's E. Hawes and L. M. R. Hawes Est. 1, 2350 nly alg ely/1 97-ac lse, 304 wly at ra on n flk, 3000 ely at ra fr wly/1 John Huff sur, pay 4550 ft, perf 71 shots 3550-70 ft, flow 155.5 bbls 25.9-gr, 3/16-in, gor 300/1, td 4693 ft.

EAST TEXAS BORDER COUNTIES WILDCAT

Harrison County—Failure: Arkansas Louisiana Gas Co.'s Dr. F. A. Baker 1, 660 n&w of sect L.A.G. Steele sur, and tr, flow 641,000 gas, 92.7 bbls 55-gr cond, 116.3 bbls salt wtr, gor 104,166/1, plug and abnd at end of 15-day test at 6783 ft.

EAST TEXAS WILDCATS

Cherokee County—Failure: Humble's Maness 1, 14,150 ewl 1600 nsl Jose M. Musquez sur, elev 346 ft, Pecan 3524-3920 ft, Austin 4335-4543 ft, Woodbine 4543 ft, Georgetown 4793 ft, Paluxy 5785 ft, Glen Rose 6090 ft, massive anhy 7550-7757 ft, James 8215-8395 ft, Pettit 8481 ft, Travis Peak 8872 ft, abnd 9289 ft.

Franklin County—Failure: Placid Oil Co. et al's Ramsey 1, 550 snl 600 ewl of 56.4-ac lse, A.

POSITIONS WANTED BY SERVICE MEN

■ **In the interest of both employers and employes, The Oil Weekly, through its Overseas Pony Edition, which is sent free to 6500 former oil men now in the services, has offered to run advertisements from those who will be seeking work once they are discharged. In some cases The Oil Weekly has a few more details but, generally speaking, direct correspondence would be advisable. Unless otherwise indicated it may be some time before the person named in the advertisement is available.**

■ Young man, 23, high school education, inexperienced in oil industry interested in any phase of work with opportunity for advancement. Orville Staack, U.S.S. Steady (AM 118), c/o FPO San Francisco, Calif.

■ Want position with chance for advancement, preferably South America as meter inspector or in measurement department natural gas or oil transmission; 4½ years' experience, 2½ years college engineering. Age 28. Probably available June 1, 1946. Sgt. C. W. Luse, Base Air Depot, Supt. Div. APO 365, c/o Postmaster, New York, N. Y.

■ Engineer officer Marine Corps, age 25, married, B.A. Rutgers University, wants opportunity as apprentice engineer in drilling, production phases oil industry. Civilian experience in construction work and with chemical company. Probably available May, 1946. Lt. Nicholas J. Dennis, H&S Co., 1st Engr. Batt., 1st Marine Division, c/o FPO San Francisco, Calif.

ADVERTISING RATES

TRADING POST SECTION

Regular classified advertisements for this special section, set in type this size without border, take flat-rate of 7 cents per word for the first insertion and 5 cents per word for each subsequent insertion of same copy. Display advertisements for this section, set in suitably larger type with ruled border, are $5.00 per inch for the first insertion and $4.00 per inch for subsequent insertions. Remittance must accompany copy which should be sent to:

Trading Post Section, The Oil Weekly
P. O. Box 2608 Houston 1, Texas

Stroud sur, Pecan 1910 ft, Blossom 2646 ft, Woodbine 3720 ft, Georgetown 4443 ft, Goodland 5191 ft, Paluxy 5223 ft, Glen Rose 5484 ft, massive anhy 6532-6671 ft, Bacon 6671 ft, Hill 6782-6822 ft, Gloyd 6918 ft, Travis Peak 7255 ft, Cotton Valley 8732 ft, abnd 9012½ ft.

Navarro County—Failure: J. L. Collins & Co.'s Greenlee 1, 3450 fr nwl 6350 fr m/w/nel Robt. Carodine sur, elev 349 ft, Austin 2675-3095 ft, Woodbine 3477 ft, Comanche ll 4040 ft, Goodland 4850-5100 ft, Glen Rose 5205 ft, massive anhy 6186-6290 ft, Pettit 6840 ft, Travis Peak 7012 ft, abnd 7510 ft.

Rusk County—Failure: Tex Harvey Oil Co.'s Coleman 1, 2400 ewl 4500 snl of Mary Ables sur, elev 332 ft, Pecan chalk 3252 ft, Austin 4046 ft, Woodbine 4290 ft, abnd 4338 ft.

NORTH TEXAS WILDCATS

Archer County—Failures: George Proctor et al's Langford 1, 855 snl 330 ewl blk 129, J. W. Harris sbdn, abnd 5135 ft.

S. F. Hutcheson et al's Harrison 1, 1250 snl 150 ewl sect 7, blk 5, Clark-Plumb sur, abnd 1157 ft.

Wichita County—Failure: Nixon Pet Co.'s Heisermann 1, 1950 nsl 1850 ewl Juan Armendaris sur A-10, elev 1124 ft, Ellenburger 4704 ft, abnd 4787 ft.

Young County—Failure: Baber & Winfrey's Grigsby 1, 1050 snl 150 ewl sect 415, TE&L Co. sur, abnd 1588 ft.

NORTH TEXAS NEW PAY TEST

Wilbarger County—East Harrold Upper Pay Discovery: Nat. Assoc. Pet. Co.'s Kelly 1-B, se se se H&TC Ry. 36, blk 13, nw offset to 4900-ft Ellenburger dis, elev 1210 ft, Canyon 3163 ft, flow 300 bbls, natural, via ¾-in fr Basal Canyon 3649-79 ft.

Clay County—Joy Intermediate Pay Discovery: Shell's M. Clark 4, (OWWO) 1050 nsl 473 ewl blk 22, H. Williams sur A-704, elev 1053 ft, Bend 5412 ft, completed in Mississippi 5945 ft, pb 4502 ft, flow 257 bbls, natural, via 10/64-in fr Basal Strawn perf 4445-68 ft, td 6054 ft.

WYOMING WILDCAT

Carbon County—Failure: Wasatch Oil Ref. Co.'s Dixon 1, se ne ne 23-19n-78w, Arlington area, abnd 5390 ft.

WILDCAT STARTS

CALIFORNIA

Humboldt County: W.C.M. Oil's Mathews-Clark 1, 21-1s-2w, Mattole River Valley area, lcn.

Kern County: General Pet. Corp.'s Pioneer 82-36, 36-29s-26e, Rosedale area, lcn.

Shell's K.C.D. 45-16, 6-31s-26e, Old River area, rur.

Los Angeles County: Chanslor Canfield Midway Oil Co.'s Bandini 1, 21-2s-12w, Bandini area, lcn.

O'Kane & Brain's Barnsdall 1, 17-5n-16w, Castaic area, rig.

San Joaquin County: Shell's Staten Island 1, 35-4n-4e, Isleton area, rur.

San Luis Obispo County: U. S. Dr. Co.'s Cuyama 1, 19-10n-24w, Buyama Valley area, dr.

Ventura County: E. E. Perkins, Ross Wileman-C. V. Couget's No. 1, 26-4n-20w, Fillmore area, lcn.

Orange County: Geo. C. Atha's Surf Land & Water 1, 13-6s-11w, Huntington Beach area, lcn.

Los Angeles County: Barnsdall Oil Co.'s Newhall Corp.-Wolfson 1 (OWDD), 26-4n-17w, Newhall-Porero area, otd 8520 ft, dr.

Federal Oil Co.'s Federal-Towle 1, 3-4n-17w, Del Valle area, rur.

Troy Pet. Co.'s Troy 1, 27-2s-10w, Puente area, dr.

Kern County: E. A. Bender's Williams 1, 32-29s-28e, East Bakersfield area, dr.

Standard of California's Weston 44-26, 25-29s-21e, Cymric area, rur.

Santa Barbara County: General Pet. Corp.'s Los Alamos 3, 31-8n-33w, Lompoc area, lcn.

Whittier Associates' G. Buell 3, 15-7n-32w, Los Alamos area, dr.

Kings County: Standard of California's 73-30V (OWDD), 30-23s-19e, Kettleman Middle Dome area, odt 7790 ft, dr.

FLORIDA

Calhoun County: Pure's International Paper Co. 2, swc 31-1s-10w, ru.

ILLINOIS

Edwards County: Central P. Line's Obold 1, ne se nw 30-1n-14w, lcn.

Franklin County: Ashland O&R's Old Ben Coal Co. 1, se se se 13-6s-1e, lcn.

Greene County: Grant Gallatin's Rothrock 1, ne sw se 6-9n-13w, lcn.

Jefferson County: Ben O. Nation's Green et al 1, nw ne ne 7-2s-4e, lcn.

Logan County: Lee Werner's Britton 1, sw sw sw 22-18n-3w, dr.

St. Clair County: St. Clair Oil Dev.'s Schwaegel 1, se ne ne 36-2n-8w, lcn.

Union County: A. S. Mims' Potshick 1, nw nw nw 26-13s-3w, dr.

Wabash County: C. E. Skiles et al Kolb 1, se se sw 6-1s-12w, dr.

C. E. Skiles et al Berninger 1, ne sw nw 18-1n-13w, dr.

Washington County: E. J. Renwaldt's Raichman 1, ne nw nw 1-2s-1w, lcn.

Wayne County: C. A. Lynch et al's Egyptian Tie & Timber Co. 1, ne nw ne 34-2s-6e, lcn.

White County: Pure's Brown 1-A, ne ne ne 1-6s-8e, lcn.

KANSAS

Barbara County: Drillers Gas Co.'s Pearl Lake 1, 1-31s-14w, sw sw sw, lcn.

Barton County: Chalmette Pet. Corp.'s Ochs 1, 20-16s-14w, sw se nw, lcn.

C. E. Ash's Moses 1, ne ne sw 35-17s-13w, lcn.

Douglas County: Volcanic Oil Co.'s Gorrill 1, se se ne 126-12s-18e, lcn.

Gove County: Solows & Modesitt's Metz 1, ne ne ne 26-12s-29w, lcn.

Lincoln County: Barnsdall et al Roberts 1, ne ne ne 21-12s-7w, dr 1220 ft.

Marion County: Rook Hall Operating Co.'s Grace 1, cn½ nw sw 11-22s-5e, dr 1600 ft.

McPherson County: R. B. Hurlbutt et al Morrison 1, c s½ nw se 12-18s-1w, dr 2400 ft.

Rooks County: Keyes Drlg. Co.'s Meil 1, ne ne ne 1, 20-9s-20w, dr 1770 ft.

KENTUCKY

Harden County: Ill. Mid-Cont.'s White 1, 20-1-38, comp.

Henderson County: Cherry & Kidd's Pritchett 1, 19-0-24, dr.

Gulf's Arvin 1, 8-P-23, lcn.

Bilsky, W. F. Moore 1, 22-P-24, lcn.

J. Resnick et al Stone 1, 7-P-25, lcn.

Union County: Ernest Eslick's Vaughan 1, 23-P-19, dr.

Texas Co.'s Heirs 2, 11-P-20, lcn.

NORTH LOUISIANA

Bossier Parish: H. C. Owens' Skidmore 1, c se ne 1-16n-11w, mim.

Big West Drlg. Co.'s Continental American Bnk. & Tr. Co. 1, c sw ne 23-19n-11w, mim.

Red River Parish: C. W. Robinson-H. L. Woods' Long Bell Lbr. Co. 1, c sw nw 8-12n-8w, lcn.

MICHIGAN

Allegan County: P. K. Degenther's Ash 1, ne nw ne 14-4n-16w, lcn.

S. L. McCall's Clark 1, se ne nw 1-2n-14w, rig.

Arenac County: R. M. Whute's McSpaddin 1, ne nw nw 34-19n-5e, rig.

W. L. McClanahan's State 1, sw se ne 35-20n-3e, lcn.

Berrien County: Sewage Sanitation Co.'s Eastman Springs 1, ne se sw 20-4s-18w, dr.

Kent County: Byron MacCallum's Green 1, n½ sw nw 27-10n-12w, rig.

Lapeer County: Clarence Wilcox's Taylor 1, nw nw ne 20-9n-10e, lcn.

Muskegon County: Muskegon Dev. Co.'s Kozcinski 1, se nw sw 2-12n-15w, rig.

Newaygo County: W. Michigan Consumer's Trails End Club 1, sw ne ne 33-15n-12w, lcn.

MISSISSIPPI

Adams County: Phillips' Davey 1, 46-8n-2w, lcn.

Madison County: W. E. Hicks' O. W. Andrews 1, c ne sw 11-9n-1w, lcn.

MISSOURI

Atchison County: Claude McQueen et al's Meyers 1, ne ne sw 30-65n-41w, dr 1125 ft.

NEW MEXICO

Eddy County: A. J. Hardendorf et al's State 2, sw sw sw 36-18s-30e, 3200-ft test.

Forest E. Levers et al's Levers 1-B, c se ne 34-16s-29e, 3000-ft test.

Santa Fe County: Richfield Oil Corp.'s Lee 2, 330 nsl 1530 ewl 14-14n-11e, mim for deep test.

OKLAHOMA

Cimarron County: Pure's Johnson 1, sw sw se 12-5n-7ecm, rig.

Carter County: R. H. Alexander's Fish 1, nw sw ne 10-1s-2w, machine.

Kingfisher County: Sunray et al's Stephens 1, ne ne sw 26-17n-5w, rig.

Muskogee County: Perry Adkins' Ford 1, nw se nw 1-13n-18e, rum.

Stephens County: Continental's Schifer 1, se ne ne 21-2s-4w, lcn.

Continental's Wilson 1, se ne sw 28-2s-4w, lcn.

WEST TEXAS

Floyd County: Geo. P. Livermore's H. A. Krause-Humble 1, c se se sect 29, blk K, T. T. Co. sur, Ellenburger test.

Garza County: M. Staniforth et al's Post 1, nw nw nw sect 5, blk 5, K. Aycock sur, out-post 1¾ mi n of Post fld, 3800-ft test, sp & sd.

Hockley County: Honolulu Oil Corp.'s Frazier 24, 2788 snl 2596 wel PSL 10, blk X, new pay test offset San Andres prod, 7500-ft test.

Loving County: Argo Oil Corp.'s E. Linberry 1, c ne sw PSL 13, blk 75, 6000-ft Delaware test.

Reagan County: Skelly's T. P. Land Trust-Reagan 1, c sw sw T&P Ry. 45, blk 36, T-5-S, 3600-ft test.

Upton County: Seaboard Oil Co.'s Velma Amacker-H. M. Halff 1, 1618 snl 4655 ewl sect 87, blk D, CCSD&RGNG sur, 5500-ft test.

WEST CENTRAL TEXAS

Concho County: B. A. Duffy et al's Jess Stephens 1, 660 out swc H&GN Ry. sect 70, blk 71, 9 mi ne Eden, 3500-ft cable test.

Jones County: Humble-Harold Neely's R. B. Spencer 5, c se ne BBB&C Ry. sec 195, offset 3200-ft Palo Pinto prod, Avoca fld Ellenburger test.

Nolan County: Sohio's Irl Faver 1, c nw nw T&P Ry. 50, blk 21, 6000-ft Ellenburger test.

Stephens County: W. R. Skeen et al's R. Hatchett 1, 549 snl 995 ewl sw¼ sect 23, Orphan Asylum Lands, Ellenburger test.

Stonewall County: T.P. Coal & Oil Co.'s M. S. Sandell 1, c se se H&TC Ry. 429, blk 9, 1¼ mi sw of a 6760-ft failure, 6800-ft Ellenburger test.

Sohio's Ward 1, c nw se H&TC Ry. 257, blk D, 5350-ft rotary test.

SOUTHWEST TEXAS

Duval County: Edwin R. Cox-Jacke 1, Hamon's Clara Driscoll 5, 1650 fr el 2310 fr nl sect 55, 330 fr sl 3120-ac lse, 1320 s of well 4, Santa Rosalia Gr, 3200-ft test.

Jim Hogg County: Texon Royalty Co.-Drlg. & Exploration Co.'s Hector Vela 2, 330 fr n&el blk 15 700 e of Zapata Co. line, 1547-ac lse, El Peyote Gr, 2500-ft test.

LOWER TEXAS COAST

Bee County: Bridewell Oil Co.'s J. W. Dryden Est. 1, 330 fr nw&nel 30.15-ac lse, Jas. Hoffman sur, 4500-ft test.

Jackson County: Louis Crouch's M. C. Jeffrey 1, 660 fr el 990 fr nl 175.27-ac lse, Morris & Cummings sur, 6600-ft test.

UPPER TEXAS COAST

Brazoria County: Glenn H. McCarthy's Thomas W. Masterson 1, 3360 fr wl 710 fr sl 340-ac lse, 12,000 fr el 2840 fr sl G. Robinson sur, 11,000-ft test.

Ft. Bend County: Continental's G. M. Brunner 1, 990 fr e&sl 327.63-ac lse, Samuel Isaacs sur, 8500-ft test.

C. A. Wiggins-Jack Frazier's Leo Peters et ux 1, 1650 fr wl 380 fr sl 200-ac lse, Samuel Pharr ¼-Lge, Pilant Lake area, 8000-ft test.

EAST TEXAS

Anderson County: Humble's R. G. Freeman 1, 400 out of sec of tr, John Little sur, Brushy Creek prospect, lcn.

Falls County: Marshall Hayes Co.'s D. G. Wooten 2, 800 fr sel 330 fr nel 100-ac tr, 800 fr sel James Powell sur, Edwards li test, sp and sd.

Houston County: Geier-Jackson Recycling Co.'s J. R. Smith 1, 467 out of m/e/sec 143-ac tr, or 3400 se of nwl 3950 sw of nel E. O. Wingate sur, mim for Woodbine test.

Smith County: Humble's T. J. Pool 1, 660 snl 900 ewl of 160-ac lse out of 243-ac tr, Wm. Saunders sur, Mount Sylvan prospect, 7800-ft Paluxy test.

Wood County: Bobby Manziel et al's C. J. Crampton 1, 330 out nec 320-ac lse and Richard Hare sur 246, 1¼ mi sw of Sub-Clarksville production, Merigale outpost test, lcn.

NORTH TEXAS

Archer County: Frank Wood et al's C. L. Abercrombie 1, 330 out nec w½ sect 152, J. W. Harris sbdn, 6000-ft rotary test.

Jack County: Ralph Harper et al's Ann Turner 1, 467 out sec 227-ac tr, Wm. Montry sur A-404, 3400-ft Strawn test.

Montague County: Venmex Oil Co. et al's A. E. Beakley 1, 330 ewl 400 nsl blk 21, M. Garnett sur A-290, Belcherville prospect, 6000-ft Ellenburger test, dr 310 ft.

Wichita County: Carl Johnston et al's Paul R. Brown 1, 750 snl 150 wel blk 311, Waggoner Colony Lands, 2000-ft test.

Young County: Robertson Dr. Co.'s Burch 1, 330 out nec se¼ sect 466, TE&L Co. sur, 5000-ft test.

Dwight M. Ross et al's F. V. Hinson 1, 1401 nsl 467 ewl sect 1454, TE&L Co. sur, 5200-ft Ellenburger test.

UTAH

Uinta County: Equity Oil Co.'s Powell 1, sw sw nw 34-4s-22e, Vernal, dr 600 ft.

Merkley & Davidson, Mayo 1, sw sw nw 22-4s-21e, Vernal, dr 300 ft.

WESTERN CANADA

Southern Alberta—Crossfield: Imperial Oil-Anglo Canadian Oil Co.'s Crossfield 1, lsd 9, 11-28-2w5th, ru.

Saskatchewan — Vera - Unity: Bata Petroleum's No. 10, lsd 3 15-39-23w3rd, dr.

SQUEAKS from the BULL WHEEL

Rushing Him

A pink elephant, a green rat and a yellow snake walked into a cocktail bar. "You're a little early boys," said the bartender. "He ain't here yet."

Advice to Maidens

Girls, don't marry a man to reform him.

The rites never right him and the altar won't alter him.

Poet's Nook

His wife was a WAVE and he
Waved at a WAC.
The WAC was in front but his
WAVE was in back;
Instead of a wave from a WAC,
It is said,
What he got was a whack from
The WAVE he had wed.

Stenographer's Diary

1943—What a man!
1944—What! A Man?
1945—What's a man?

Happy Coincidence

An Englishman and an American soldier were motoring along an English road. At intervals the Englishman, who was driving, would stop and dust the roadside with white powder which he carried in a large can in the car.

Finally the GI could restrain his curiosity no further, and asked what it was all about. "Oh, this," said the Englishman casually, "is lion powder."

"Lion powder," exploded the GI. "But you haven't any lions in England."

"No," said the Englishman, lowering his voice to a confidential whisper, "and a good thing it is, too, because this powder's no good."

This Curious World

If you've got the Jack you can always draw the Queens.

Where I made my mistake, said the childless movie star, was in marrying a director instead of a producer.

Two men got off a bus. One of them had come to town for good. The other was a sailor on a furlough.

Military definition of a Sweater Girl: "A sight for GI's."

Overheard: "I'm sorry I slapped you. I thought you were trying to steal my sorority pin."

An optimist is a man who thinks his wife has stopped smoking cigarettes when he finds cigar butts around the house.

Just Changing the Subject

First soldier: "See that good-looking gal across the street?"

Second Soldier: "Yeah, so what?"

First: "Well, see that fur coat? I gave her that. And see those swell clothes? I gave her those."

Second: "See that little boy with her?"

First: "Yeah."

Second: "Cute, ain't he?"

The Takedown

One night while Coolidge was vice president his hotel caught fire. He and Mrs. Coolidge rushed down into the lobby with the other guests, and there they were detained by the firemen long after the small blaze had been extinguished.

At length Mr. Coolidge grew weary of being kept from his bed and started up the stairs, but was halted by the fire marshal, who asked: "Who are you?"

"The vice president," said Coolidge.

"Okay," said the marshal, but after Coolidge had taken a step or two, he added suspiciously, "What are you vice president of?"

"The United States."

"Then you come right back down those stairs. I thought you were vice president of this hotel."

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- Furnish longer continuous runs.
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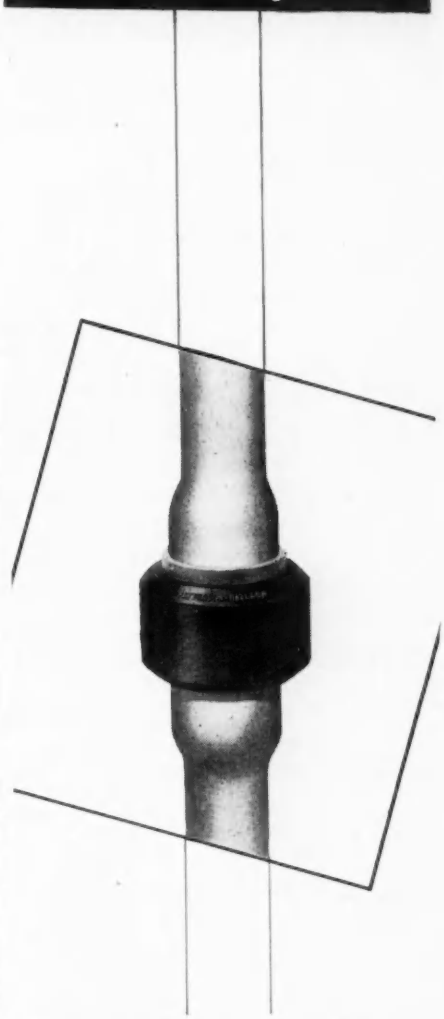

Cut Metal-to-Metal Contact

These oil-proof, insulating, wear-resistant, plastic tubing protectors are an integral part of the tubing collar. Made in all sizes, they prevent the metal-to-metal contact that causes many expensive "wet" jobs in pumping wells. Without this contact, the collars do not wear holes in the casing.

See Composite Catalog

Patterson-Ballagh
TUBING PROTECTOR
LOS ANGELES 1 · HOUSTON 10 · NEW YORK 6

MEN IN THE INDUSTRY NEWS

John M. Ware, assistant to the vice president in charge of land and exploration for Deep Rock Oil Corporation, Tulsa, resigned September 1 to engage in independent work as a consulting geologist. Ware attended the University of Missouri, receiving his A.B. in 1926 and his M.A. in 1927, after which he went to Columbia University, New York City, as assistant to **Dr. J. J. Galloway,** professor of micropaleontology and stratigraphy. He returned to the University of Missouri to teach in 1929 and the following year joined Skelly Oil Company at San Angelo, Texas. Shortly afterwards he was transferred to the Tulsa office, where he had charge of all geological microscopic work until 1935, when he joined the Burke-Greis Oil Corporation. He was transferred to Deep Rock in 1940. He is a member of the Nomenclature Committee, Mid-Continent Oil & Gas Association, Oklahoma Division.

John M. Ware

J. L. Hoyt, Jr., has been appointed superintendent of the Pan American Production Company's Valley Division, with headquarters in the Willamar field, Willacy County, Texas.

Hoyt replaces **D. H. Emerson,** who has left the oil business to operate his ranch near San Marcos, Texas. Hoyt has been with Pan American since the middle of 1938 in various fields in Texas and Louisiana, and most recently has been district production foreman in the Willamar field.

David L. Gordon has been elected vice president of Anchor Petroleum Company, Tulsa. He will maintain offices in the Second National Bank Building, Houston.

Robert W. Young has resumed his position as field service representative of the Pennsylvania Grade Crude Oil Association and will have headquarters in Cleveland. Young was eastern representative for the association from October, 1939, to March, 1943, when he resigned to accept an assignment in war work at Bedford, Ohio.

Arthur Smith, Jr., has been named manager of the new Cathodic Protection Sales Department of the Magnesium Division of the Dow Chemical Company, with headquarters at the home office in Midland, Michigan. Smith goes to Midland from the St. Louis office, where he was director of magnesium sales for the Southwest territory.

H. A. Ellis will continue to handle sales in the St. Louis territory.

Bushrod Brush Howard has been elected to the board of directors of Standard Oil Company (New Jersey), following the recent retirement of **Wallace E. Pratt.** Howard has been associated with the company since 1920, when he joined the marine operating division. He was managing operator of Societe Auxiliare de Transports in 1925, and later director of l'Economique and Bedford Petroleum Company, French affiliates with headquarters in Paris. In 1929, he went to London to coordinate marine operations in the European area for Jersey's Standard Shipping Company, returning to this country in 1934 to become assistant manager of marine operations. He went to England in 1941 to expedite deliveries of oil from the United States. In 1942 he went to India and the Suez area as a representative of the War Shipping Administration. He is president of War Emergency Tankers, Inc., operator of government-owned tankers for the War Shipping Administration.

Paul Bray, Skelly Oil Company, has been named chairman of the branch house division of the Tulsa Community Chest drive for 1946.

Joseph C. Thorstenberg has resigned as technologist with Continental Oil Company to join the research department of the Skelly Oil Company, Pawhuska, Oklahoma.

Lieutenant Colonel Albert B. Stevens has returned to College Station, Texas, to begin a 60-day leave, after which he will be released from the Army, in which he has served since January, 1942. Colonel Stevens is on leave from Texas A. & M. and holds the position of professor of Petroleum Engineering. He has been a member of the A. & M. faculty since 1934.

Colonel Stevens went overseas in March, 1944. Most of his service overseas was with the military pipe line service as chief of construction branch, his principal task being engineering supervision in the construction of pipe lines furnishing petroleum to the armed forces.

Sigfried A. Olson, Jr., has been named industrial manager at Stockholm, Sweden, for the Brown Instrument Company, Philadelphia division of Minneapolis-Honeywell Regulator Company. Olson has been New York sales engineer for the Brown Company for the past nine years. He is thoroughly experienced in all the new electronic and standard instrument applications.

E. D. Wacker has been appointed general manager of the C. J. Tagliabue Division of Portable Products Corporation, Brooklyn. He has been with Tagliabue for 22 years and has served as general sales manager for eight years.

Hubert Guyod announces the opening of offices as a well logging consultant, temporarily at 730 First National Bank Building, Houston. He will specialize on log interpretation, design well logging equipment, and engage in general research on well logging. He recently resigned his position as research engineer for Halliburton Oil Well Cementing Company, with which concern he has been associated since 1940.

Hubert Guyod

Guyod is a graduate mining engineer and has been engaged in geophysical work and electrical well logging since 1927. He introduced electrical logging in Roumania in 1931, in French Morocco in 1932, and in Germany in 1933. From 1935 to 1939 he was chief engineer for Schlumberger Well Surveying Corporation. He is the author of numerous technical articles.

C. L. Fleming, director, vice president and manager of the refining and marketing department of The Ohio Oil Company, Findlay, Ohio, recently retired after 47 years of continuous service.

Wilson B. Emery has been elected a member of the board of directors to fill the vacancy caused by Fleming's retirement.

C. Z. Hardwick has been elected a vice president and will succeed Fleming as manager of the refining and marketing department.

Emery was employed by the company in 1919 as a geologist in Wyoming. From 1926 until 1938, he was in charge of geological activities in the Rocky Mountain division and also was assistant division manager and superintendent. He was appointed chief geologist in 1931 and was transferred to the general office at Findlay. In May of that year he was made assistant manager of production, and in 1932 he was elected a vice president and appointed manager of production.

Hardwick was first employed as a clerk in the Haynesville, Louisiana, field office. Later he was transferred to the division office in Shreveport, as assistant division comptroller. He later went to Robinson, Illinois, where he served for six years. He was then transferred to Findlay, and has been assistant manager of the refining and marketing department since April, 1934.

Joe Cannon, geologist on the staff of the PAW at Tulsa and later at Chicago the past 2½ years, has rejoined the firm of Cannon and Cannon, West Texas consulting geologists with headquarters at San Angelo.

MEN IN THE INDUSTRY NEWS

Lawrence E. Ferguson recently became assistant sales manager for Franks Manufacturing Corporation, Tulsa. For the past year he has been technical copy writer with the Brooks-Wilson Advertising Agency of Tulsa.

Lawrence E. Ferguson

Ferguson is a native Oklahoman and a graduate of Oklahoma University. He has been associated with several major supply and equipment manufacturing firms during the past 15 years. He was with Lucey Products Corporation for nine years.

Bob Franklin, superintendent for J. R. Sharp Drilling Company for four years, has resigned to become an independent operator, and will continue to make his headquarters at Midland, Texas.

Al Buchanan, San Antonio independent oil operator, has been named by Governor Coke Stevenson as a member of the new state aeronautics commission.

Henry A. Bourne has been appointed sales manager for Republic Steel Corporation in the Tulsa district. He joined Republic in 1943 as a salesman in the Tulsa district. Prior to that he was district sales manager in Houston for A. O. Smith Corporation, Milwaukee.

George L. Parkhurst, contract executive for the Refining Division of the Petroleum Administration for War, left PAW August 31 to become associated with the Oronite Chemical Company, a subsidiary of Standard Oil Company of California, with headquarters at San Francisco. He will be a vice president and director of the Oronite company and a director of the California Research Corporation, another subsidiary of the Standard Oil Company of California.

Lieut. Col. Russell Cobb spoke before the Engineers Club of Tulsa on "Ideas of a Retread." Other speakers included **Col. Don S. Dunlap** and **Lieut. Col. Lynn Moore,** who cited personal experiences during the war.

J. M. McReynolds, J. H. Heinzerling and **H. W. Arduser** have become general partners in the Vinson Supply Company, Tulsa. McReynolds, sales manager, has been associated with the firm for over nine years, Heinzerling, assistant sales manager, for over four years, and Arduser, chief engineer who had extensive production experience with major oil companies before joining Vinson, has been with the company over eight years.

Paul F. Kohlhaas has been appointed to the newly-created position of vice president in charge of engineering of Columbia Steel Company, San Francisco. Kohlhaas has been chief engineer of Columbia Steel Company, a subsidiary of United States Steel Corporation, since 1941. For 16 years prior to his connection with Columbia he assisted in the building of iron and steel plants in England, China, Japan, Manchuria, India and many parts of the European continent.

R. F. Schooler has resigned from PAW to become purchasing agent in charge of materials for Stephens Petroleum Company. Before joining PAW he was materials man for Kobe, Inc.

Torey H. Webb of Los Angeles, vice president of Texas Oil Company, and **Dorothy Kimball Stewart** of New York City, were married recently at Las Vegas, Nevada.

Terry A. Pollard is now employed by Phillips Petroleum Company as regional reservoir engineer at Houston. Pollard was petroleum engineer for PAW in District 5, California, and has worked for The Standard Oil Company of California and Standard of Texas since receiving degrees in geology and mechanical engineering from the University of Texas.

Deaths

Frank A. Merrick, pioneer Oklahoma oil operator, died August 31 in Ardmore, Oklahoma, after a short illness. Merrick, 82, was born near Titusville, Pennsylvania, where at the age of 10 he recovered oil by dipping crude off creeks in the Triumph field. He went to Oklahoma in 1913 and had been an active operator until the time of his death.

G. A. Penick, one-time attorney for the Cosden & Company oil firm, died August 31, in Tulsa. Penick, 65, was a native of Virginia and moved into Oklahoma Territory in 1904 as an employe of the Federal Land Office at Muskogee. After resigning from the Cosden company he engaged in the oil business as an independent and continued to practice law.

Frank A. Martin, Sr., pioneer Tulsa oil man, died September 1, at Valiant, Oklahoma. Martin, 71, was superintendent of Sinclair Oil Company's drilling department for 25 years and since his retirement has been associated with Eureka Tool Company.

Guy Arnot, 53, and **Clyde Jackson,** 57, drillers for the Wilcox Drilling Company, were fatally burned September 2 while at work on a well near Breckenridge, Texas.

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Orbit Master Valve

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See pages 2194 to 2211 in 1944 Composite Catalog

Orbit Valves Require No Lubrication to Effect a Seal

ORBIT VALVE COMPANY
TULSA, OKLAHOMA

1—Safety Vent

J. A. Zurn Manufacturing Company, Erie, Pennsylvania, has perfected a new safety vent with rupture diaphragm which is claimed to provide a wide margin of protection against fire and explosion in tanks containing inflammable liquids.

These units give double protection, in that they are a combination vapor valve and rupture diaphragm. They contain a special disc or rupture diaphragm that will break to relieve excessive pressure which build up within a storage tank. Thus, by permitting the escape of unusually high pressures, danger from explosions is reduced to a minimum.

In addition to the rupture diaphragm, these units have the ordinary function of permitting a safe escape of inflammable gases from a tank. This is accomplished by means of a specially designed unit with perforated brass flame barrier plates. Exhaustive tests have proven that this unique feature prevents flames from flashing back through the perforated vent plates into the tank where inflammable liquids might be ignited, it is said.

Safety vents are made in cast bronze, steel, semi-steel or cast iron.

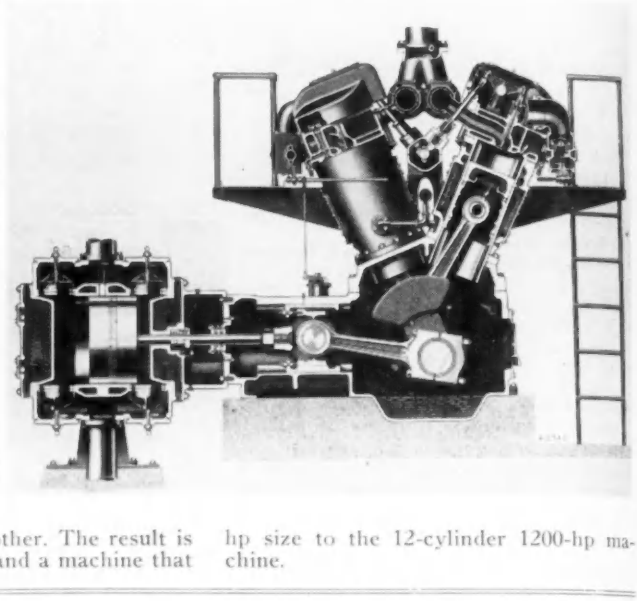
2—Compressors, Engines

Ingersoll-Rand Company, New York City, announces addition of the Ingersoll-Rand 4-cycle, V-angle compressors and engines, to its line of pipe line equipment.

The new line is available in five models permitting the choice of a unit that is best suited to any set of operating conditions, whether 1,2,3, or 4-stage compression, or whether handling small volumes at high pressures or large volumes at low pressures is desired.

When the smaller number of compressor cylinders is used, the extra compressor frame is omitted, and the engine cylinders at this point are located closer to each other. The result is a shorter crankshaft, and a machine that is more compact and lighter in weight.

The PKVG gas engine, companion of the compressor, is also available in four sizes ranging from the 6-cylinder, 600-hp size to the 12-cylinder 1200-hp machine.



3—Resistors

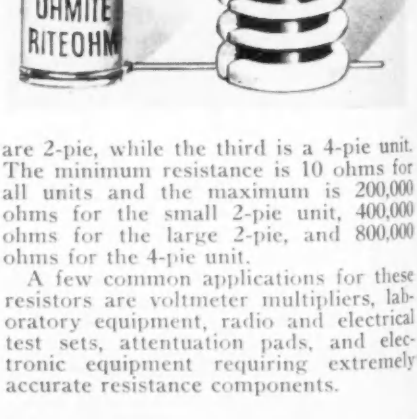
Ohmite Manufacturing Company, Chicago, announces two new series of precision resistors, 82 and 83.

These units may be mounted by means of a through-bolt. Series 82 has two lug terminals at one end firmly fastened by screws Series 83 has radial wire leads.

Both units are pie-wound to 1 percent accuracy. Enameled alloy resistance wire is non-inductively pie-wound on a non-hygroscopic ceramic bobbin which has a hole through the center for a No. 6 screw. After being wound, the units are vacuum impregnated with a varnish which provides additional insulation and protects the winding against humidity. The resistors can be supplied with a varnish coating containing a fungicidal agent, thus making the units particularly suited for use in the tropics.

The 82 is available in three sizes—11/16 inch diameter by 1⅛ inches long, 1-7/16 long or 1¾ long for the 2, 4 and 6 pie units respectively. The minimum resistance is .1 ohm for all units and the maximum is 400,000 ohms for the 2 pie unit, 750,000 ohms for the 4 pie, and 1 megohm for the 6 pie unit.

The 83 is available in three sizes—½ inch diameter by 7/16 inch long, ⅝ inch long or 1 inch long. The first two units are 2-pie, while the third is a 4-pie unit. The minimum resistance is 10 ohms for all units and the maximum is 200,000 ohms for the small 2-pie unit, 400,000 ohms for the large 2-pie, and 800,000 ohms for the 4-pie unit.



A few common applications for these resistors are voltmeter multipliers, laboratory equipment, radio and electrical test sets, attentuation pads, and electronic equipment requiring extremely accurate resistance components.

Use This Convenient Coupon for Additional Information

Check below the numbers identifying items on which you want additional information. Mail coupon to The Oil Weekly and your request will be forwarded to the manufacturer.

THE OIL WEEKLY
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Please have manufacturers send me, without obligation, more informatoin on items shown in September 10 issue of The OIL WEEKLY as checked below:

1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

In addition to information checked above, I would like more data on products or services advertised elsewhere in this issue by_____ Company

Name_____ Title_____

Company_____

Address or P. O. Box_____

City_____ State_____

(To avoid delay print or type clearly name, company and mailing address)

4—Well Head Equipment

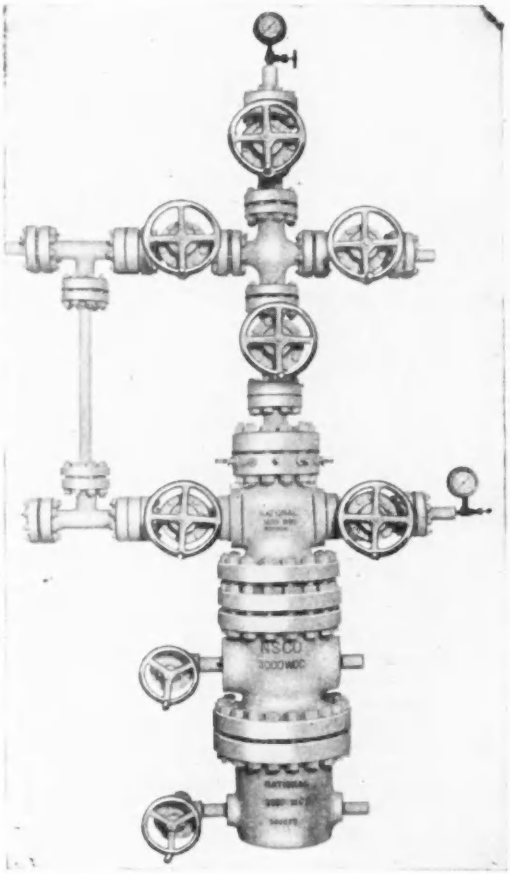
The National Supply Company, Toledo, Ohio, announces an addition to its line of oil field equipment designated as National Type B Pressure Pack Well Head Equipment. It is available in a complete range or test, working pressures, and depth ratings, and is said to provide a modern, full-opening line of safe, dependable equipment.

In-built features include simplicity with flexibility that offers a great variety of interchangeable combinations. Standard flange dimensions permit utilization with any blow-out equipment meeting API standards.

Safe construction is the first criterion in the design and production of the pressure pack outfit. The elements are generously proportioned to sustain loads at reasonable stresses.

Assembly is simple as parts are self-locating and self-activating. No special tools or adjustments are required.

Many different combinations are possible: slips and mandrel casing hangers, plain cross-over, safety cross-over, regular safety and plain slip weld flanges are interchangeable. In addition to a full line of complementary parts in each test pressure specification, casing and tubing spools of one rating and outlet specification are made to respectively cooperate with casing flanges and spools of another specification.



These full opening designs are provided with bit pilots corresponding to the casing size to guide the drilling bit into the casing. The bit pilots are readily replaced with another size in the field when changes are made in the casing program.

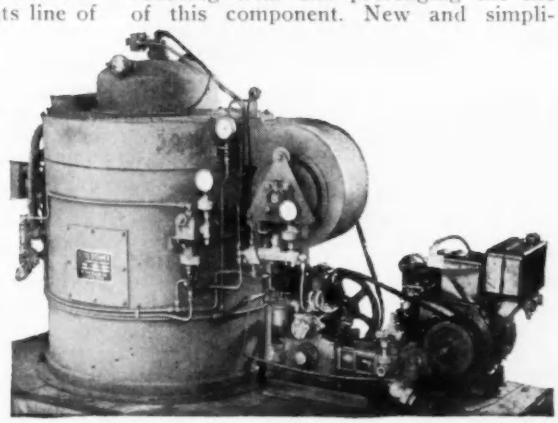
Packing in the inner seal is of a double-lip construction which is said to give positive sealing regardless of whether a higher pressure exists in the lower annular space due to ineffective cementing and high pressure sands, or in the upper annular space. The oil-resistant plastic will not extrude or disastrously deform under well pressure loads, according to the manufacturer.

In the outer seal, a second seal for safety is secured by a metal ring gasket between all flanged members, completing the wall of metal between the well and the atmosphere.

5—Steamers

Bettis Sales Company, Houston, announces the addition of a new and improved 40 horsepower unit to its line of Bettis Portable Steamers designed especially for oil field service. In addition to its adaptability wherever quick, portable steam is required, the 40-horsepower steamer is particularly recommended for heating power rigs for winter-time operations.

The new unit supersedes the 30-horsepower Bettis Steamer and operates up to 600 pounds steam pressure. All steel construction has been employed in the new unit to assure maximum strength with minimum weight. Other features include a new design triplex water pump combined with magneto and fuel pump that operates at slow speed of 956 revolutions per minute, thus reducing wear and prolonging the life of this component. New and simpli-



EIGHT interchangeable cutters. Fast cutting action, directed at 30 degree angle, cutters are hard surfaced steel. See Composite Catalog or write for Bulletin and additional information.

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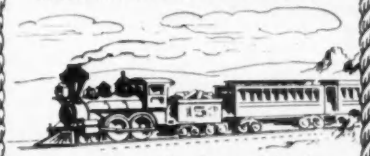
ROPE—
in the course of
Human Events



In petroleum fields—and in the building of railroads that haul oil products to market—rope plays important roles. Rope helped build the first rail-span between East and West, dramatically completed by the driving of a golden spike at Ogden, Utah in May 1869.

Rope still has important jobs to do, and today, with rope more than ever at a premium, our job is to help you conserve the rope you have on hand. So, we have prepared an informative booklet called, *Care and Conservation of Rope*. It's free. For helpful pointers on making rope last longer, write for your copy today. 200

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NEW EQUIPMENT . . . LITERATURE

fied controls make possible lower differential in cut-in and cut-out pressures. The unit operates on a 2½-horsepower gasoline engine or 1½-horsepower electric motor.

The steamers employ a patented staggered coil assembly, compensated for expansion, and designed to split into narrow films combustion gases which flow freely in opposite direction from the flow of water through the coils.

A single motor operates feed-water pump, fuel pump, magneto and blower for combustion air. Thus, fuel supplied to burner is automatically regulated in relation to amount of water circulated and amount of air delivered for combustion.

6—Magnetometer

Wolfson Instruments, Toronto, Canada, announces a new magnetometer of greatly increased sensitivity. The instrument can be used 24 hours a day regardless of clouds or darkness. It is compact and can be carried and operated by one man.

7—Electrode

Ellwood Products Corporation, Ellwood City, Pennsylvania, announces a new type of cutting electrode which is said to greatly increase the speed in cutting metal. The electrode is so designed that any unskilled workman can successfully cut metal after only ten minutes of instruction, it is said.

Although designed primarily to permit salvage of damaged ships by the Navy, the electrode can be used for any metal cutting job, either under water or on land.

The electrode is made of steel in the form of a hollow tube with an adhesive-type coating which prevents it from sticking to the cutting surface, and is used with oxygen.

Speed of operation is claimed to be a major advantage of the electrode, since a molten arc is obtained the instant it is placed against the surface to be cut. It can be used with either AC or DC current. A torch holder prevents burning down to a point where the electrode cannot be removed with ease. As its cutting life ends, it can simply be drawn from the holder and a new electrode inserted.

Literature

8—Gaskets

Steel Improvement and Forge Company, Cleveland, has published a booklet, "Gruv-Seal, Forged Iron and Alloy, Ring Gaskets," which gives information and buying data on forged gaskets made of ingot iron, nickel, chromium and monel metal.

These gaskets are particularly suitable for high pressure and high temperature service. The illustrated, two-color brochure contains four tables giving API and ASA ring gasket sizes and special stock sizes, as well as list prices.

Use the Coupon

For free copies of Manufacturers' Literature or more information on products described on these pages, use the convenient mailing coupon on page 108.

9—Lubrication

The Farvel Corporation, Cleveland, has published a folder discussing the advantages of centralized lubricating systems. Basic facts are set forth in a compact summary showing how the Farvel lubricating system operates, with statements of specific results attained through its use.

10—Maintenance

Ideal Commutator Dresser Company, Sycamore, Illinois, has published a guide for reconditioning "war weary" machinery, titled "Modern Motor-Generator Maintenance and Repair Equipment."

A complete preventive maintenance program for motors and generators is outlined.

11—Fractional Horsepower Drives

The American Pulley Company, Philadelphia, has published a catalog on fractional horsepower drives. The catalog contains complete specifications on the complete new line of fractional horsepower sheaves and belts, and also contains condensed and simplified drive tables for a wide range of center distances and drive ratios.

Personnel Changes Announced By Houston Oil Field Firm

Houston Oil Field Material Company, Houston, announces the following changes in personnel: W. M. Garney has been appointed business manager of the Arizona Barite Company, a new branch of Houston Oil Field Material Company, and will move to Phoenix, Arizona, where he will work with W. F. Paine, who is production manager for this new company.

George Skipper succeeds Garney as chief clerk of the sales department and will work directly with the tubular goods department.

W. B. Stallings has been appointed manager of the tubular goods sales and, with Skipper, will handle all matters pertaining to sales of oil country pipe.

Otho Meadows has been transferred from field sales work in Odessa, Texas, to Harvey, Louisiana, where he has assumed his new duties as store manager.

J. B. Porterfield has been placed in charge of mud and chemical sales in the Odessa, Texas, district, working with L. L. Talley, district sales manager.

The Magnolia branch of the cutting and fishing tool department under E. P. Sawyer is being transferred to Shreveport from Magnolia, Arkansas.

Leslie P. Graff has been appointed district engineer in South Texas, with headquarters in Corpus Christi, although his home will be in Alice, Texas.

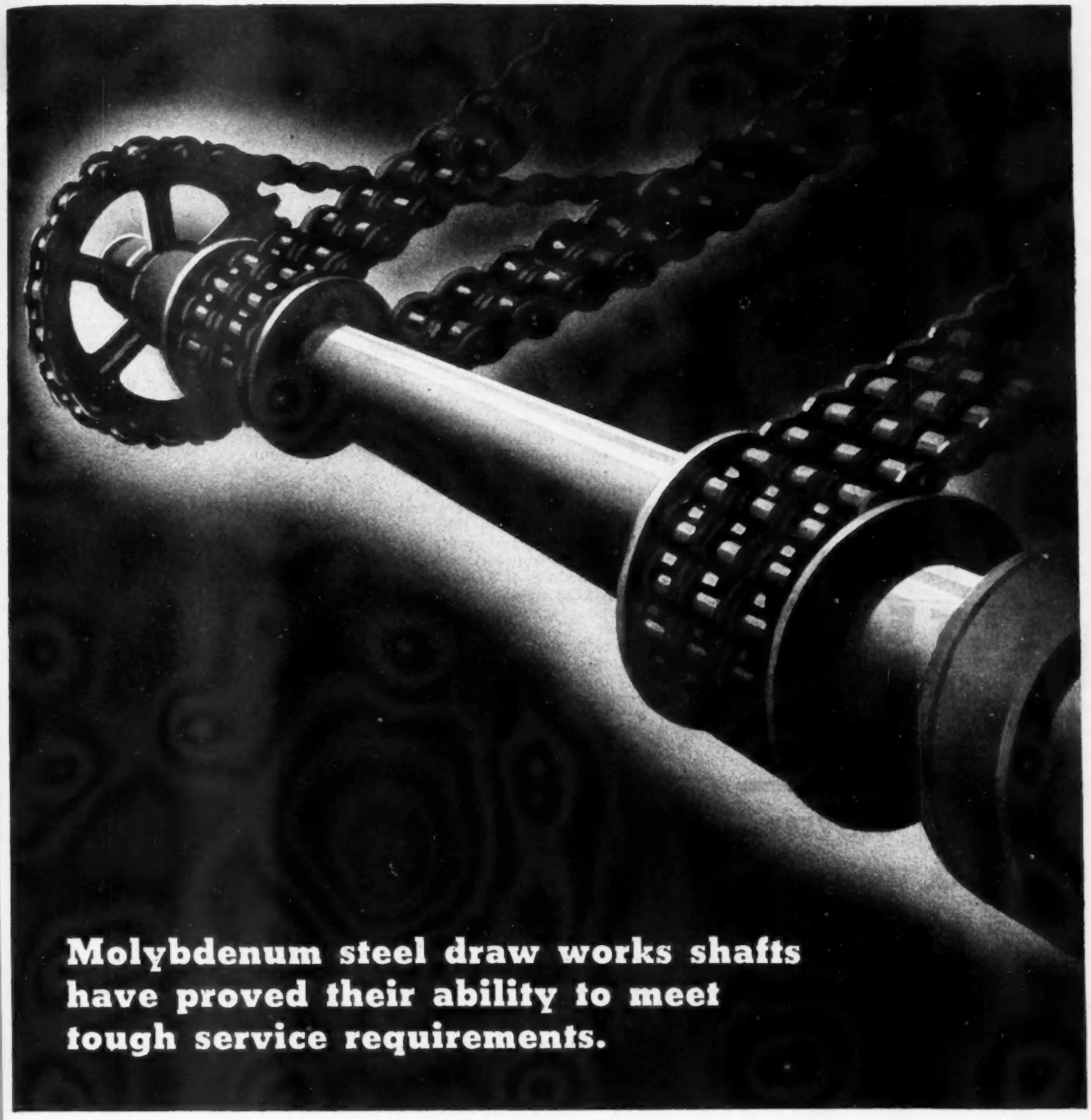

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Fig. C-727

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Corrosion in High-Pressure Condensate Wells Is Studied

Corrosion of equipment in high pressure condensate wells is being studied by a group of cooperating agencies working under the general direction of the Natural Gasoline Association of America. Entering the second year, three additional studies sponsored by the Association Corrosion Research Project Committee at the University of Texas, have been announced. Each of the new projects will cover a different but related phase of the over-all problem of determining the causes and possible cures for the type of corrosion found in high pressure gas wells.

One of the new projects at the University is concerned with a study of surface films on well equipment and will be under the direction of Dr. Norman Hackerman, Department of Chemistry. This project is to be known as the "N.G.A.A. Corrosion Fellowship." The work will involve an extensive investigation of the physical characteristics of various types of surface layers and the correlation of results with the types of corrosion attack observed in wells. This will require the setting up of sampling procedure, recording of field data from wells, the making of photomicrographs, and classification of various types of corrosion effects. The chemical nature of the films is to be determined by metallographic studies, microanalysis and electron diffraction patterns of these films. Once the character of the films actually encountered in wells is determined, attempts will be made to reproduce them in the laboratory and studies made of ways to combat the corrosive action.

A second project at the University of Texas is concerned with the varieties and concentrations of organic acids and other compounds, such as phenols, in waters taken from condensate wells, and is to be under the direction of Dr. H. L. Lochte, Department of Chemistry. This work involves the identification of acids through potentiometric titrations, chemical analysis, and quantitative separations made on submitted water samples. Closely allied with this work is a third study under the direction of Professor William A. Cunningham, Department of Chemical Engineering, which includes the routine analysis of the large number of water samples obtained from both corrosive and non-corrosive wells and from different producing horizons in dual completion wells.

Kansas Line Completed

Built to supply a refinery near Garden City, Kansas, the farthest west crude oil pipe line in that state has been completed and is now in operation. The line extends about 12 miles to the Shallow Water refinery and is operated by the Trans-Crude Company of Kansas City, subsidiary of the refinery company.

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